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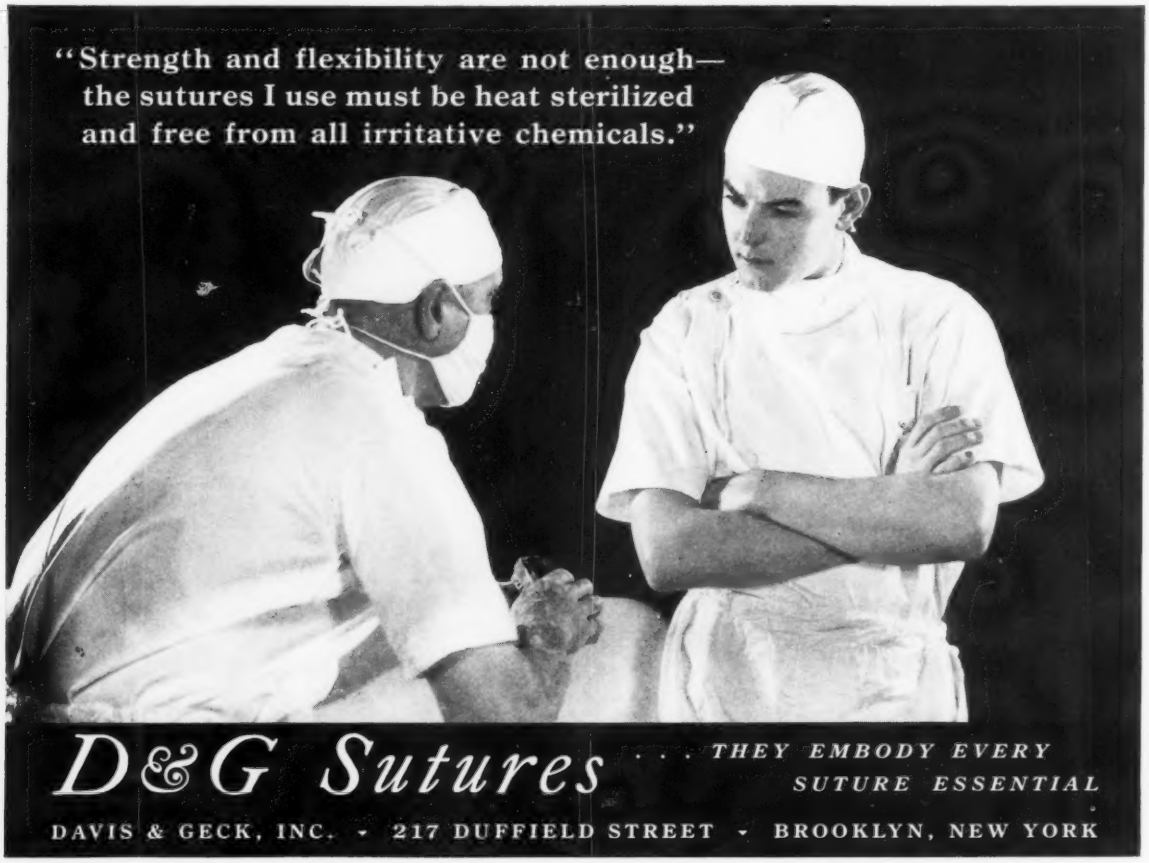
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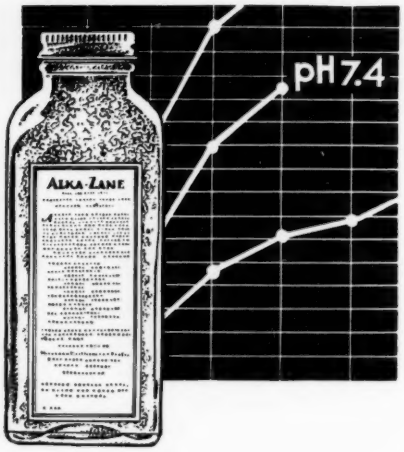

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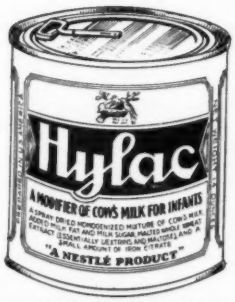

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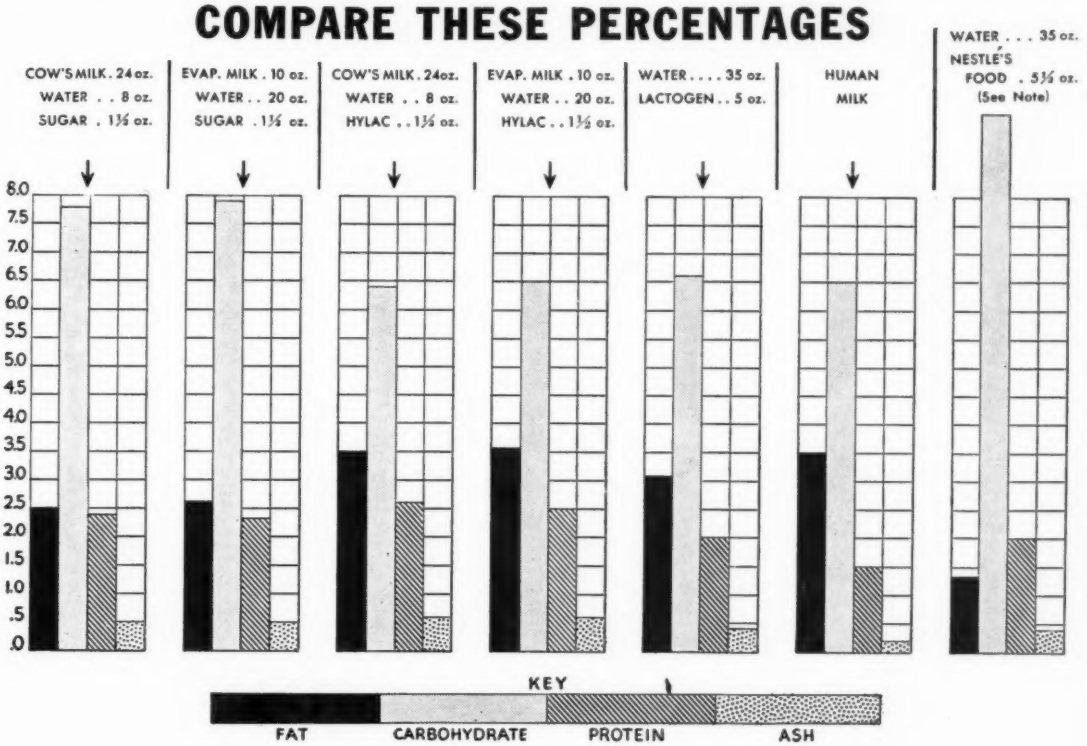

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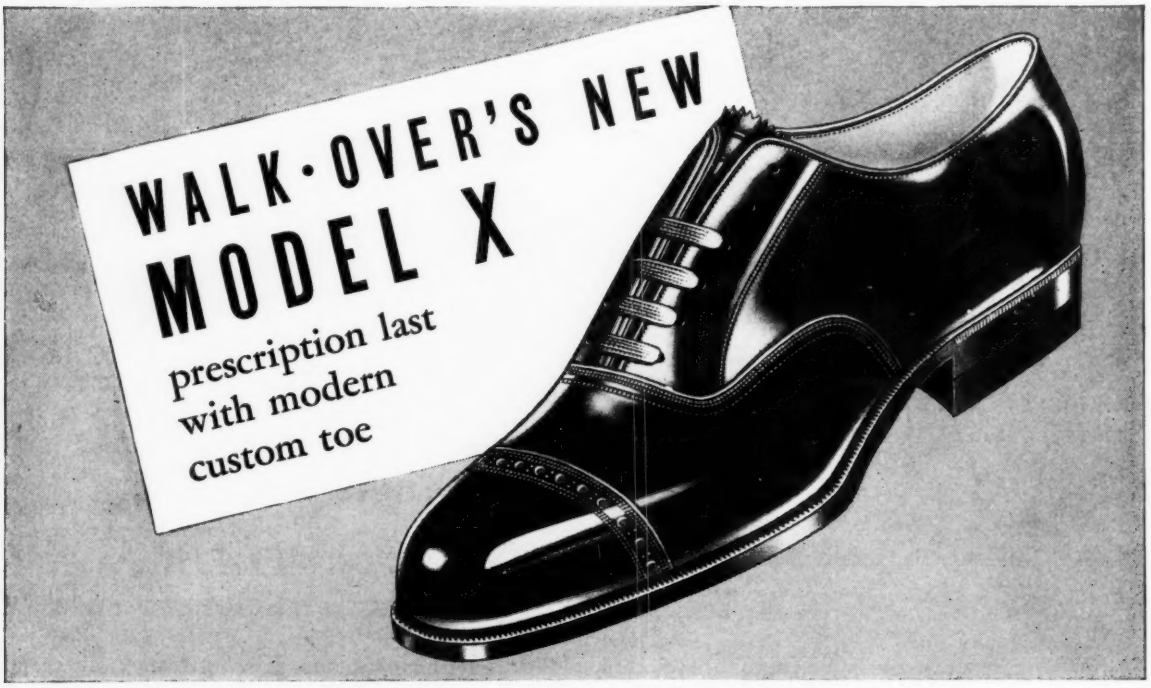

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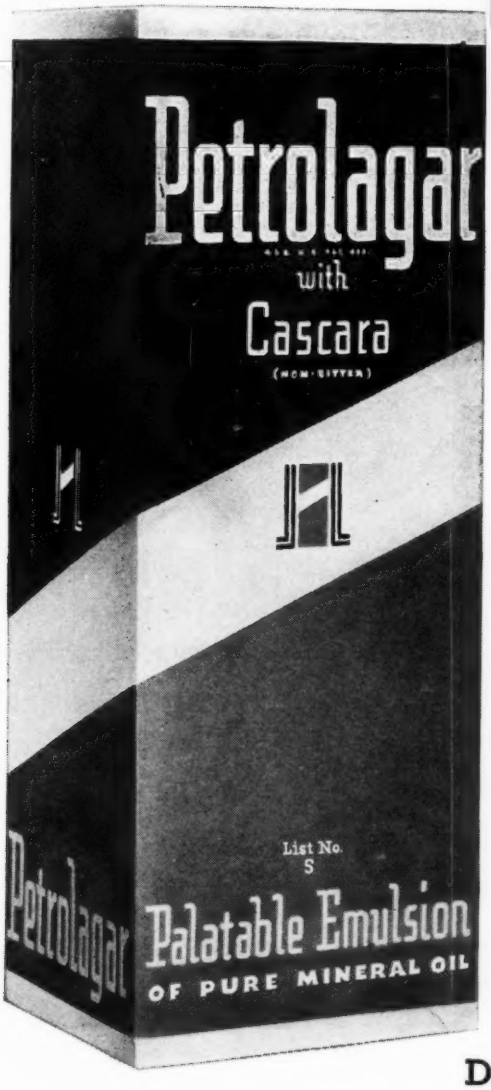

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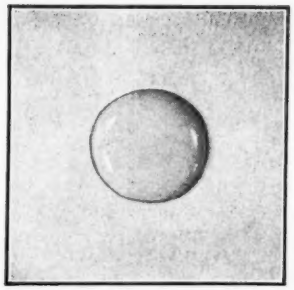

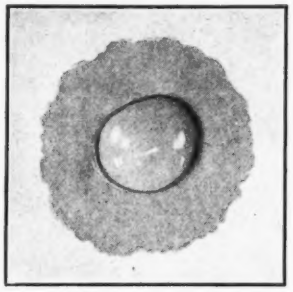

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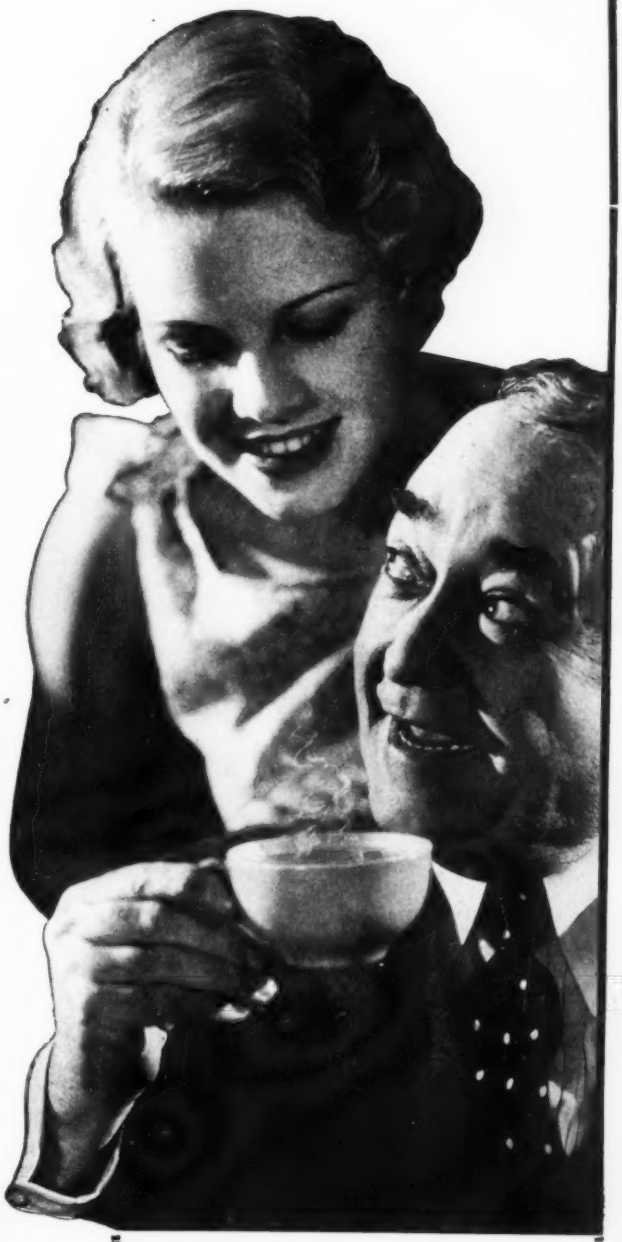

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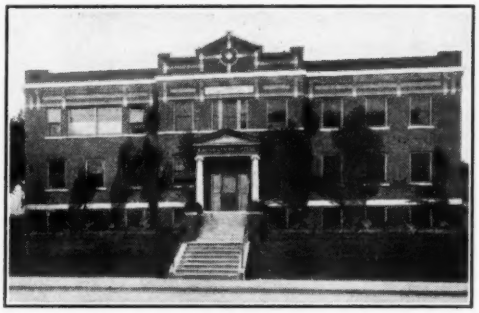

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Fundamentals of Osteopathic Technic*

R. R. PECKHAM, D.O.

Late of the Chicago College of Osteopathy

It shall be the purpose of this paper to bring into relief the more salient factors which underlie the successful application of manipulative adjustive technic.

It seems probable that few studies have been subjected to as many confusions as the study of technic. Osteopathic writings are running over with words about theories by which various successful operators have rationalized their procedures. It is only through operative experience that many of their so-called principles are subject to interpretation, and it has been through operative experience that a very large number of these theories and principles have found oblivion.

No theory or principle of technic will become permanent which fails in either of two points. It must rationalize, account for, and explain successful manipulative procedures; and it must be of such scope that it will include other manipulative procedures which from time to time are found to be effective.

Much confusion in the formulation of principles of technic has resulted from incompetent analysis of the lesion entity. Lack of recognition of the important phases of the lesion has permitted the development of vicarious classifications, unsound fundamentally even though they have permitted apparently sound classification. Unsound classifications of lesions have given rise to misunderstandings in the minds of students and operators and it has followed, of necessity, that nomenclature, classifications, and principles of manipulative procedures have been generally misunderstood. It has been unfortunate for the development of osteopathic technic, that the analytical type of mind has a propensity for complexities of thought. Frequently simple statements of principle have been passed by unnoticed because of their very simplicity.

With all of these thoughts in mind, it seems advantageous to deal in the simplest of terms in this discussion. No new classifications of the lesion will be made. No new principles of technic will be stated. An earnest effort will be made to correlate information which will be well understood by all experienced, successful operators, to the end that each of us may better understand and apply those methods of technic with which we are already familiar.

It has been said truly that the most important phase of technic is diagnosis. It would seem unnecessary to make a special point in this regard were it not for the fact that many operators are more concerned with the application of a treatment than they are with the careful selection of the precise treatment for the specific requirements of the subject receiving the treatment. It may be said that manipulative treatment not preceded by careful diagnosis of lesions is successful by accident and results may be predicated proportionate to the law of averages derived from such accidental treatment. The scope of this paper does not permit an exhaustive analysis of the diagnostic problem. It is, however, necessary, to point distinctly to the frequency with which requirements of the specific lesion entity are subordinated to the application of a favorite method of correction.

It is essential that a skilled operator definitely understand the general principles of physiological movement of joints. The timeworn statement that "bone cannot be pushed through bone" indicates the necessity for such comprehension. The normal spinal joint may be bent forward, backward, or sideward. It may also be rotated. Its structure is such that when it is rotated, it side-bends slightly and when it is side-bent, it rotates slightly. Spinal movements may be simple, involving one plane such as forward bending, or they may be very complex, involving many planes, such as forward bending, side-bending and rotation. From these simple or complex normal movements arise the peculiar positional arrangements noted in lesion deformity. It is of first importance in the study of technic that the operator be sufficiently grounded in the phenomena of so-called physiological movements, that he may, throughout his study of manipulative, adjustive technic, avoid a multitude of errors in attempting to inaugurate movement in a joint, which, for that joint, is a physical impossibility.

It has been thought and taught erroneously that any individual adequately grounded in the physiological movements of *normal* joints would be

*Delivered before the A.O.A. Convention, Milwaukee, 1933.

possessed of knowledge which would make technic automatic. The error of this viewpoint becomes obvious in the fact that in the presence of those pathological conditions which constitute the lesion, the behavior of that joint varies from the behavior of a normal joint. In fact, these variations in tissue tensions of a joint constitute the major findings which designate the presence of a lesion. Thus it may be said for physiological movements, that they together with the feel of the tissues around joints are the natural and essential background upon which the student of technic may study and recognize the pathology of lesions. In the application of technic, the force is applied where this pathology is found, and in the application of this force, it is mandatory that the force be directed along planes of movement possible to that joint. Force not so directed defeats its own purpose.

Much might be said concerning the principles of application of force. In finality it may be said that force is applied for the purpose of changing the pathological entities which constitute the lesion. Some have said that the purpose of technic is to recover normal position; others, that the purpose of technic is to establish equal ranges of movement; others, that the purpose of technic is forcibly to overcome physiological tissue tension. At any rate, the only rational purpose for force is to overcome resistance. Whether the resistance arises from pathological infiltrations, physiological pathology, or pathological physiology resulting in tissue tension is not the concern of this paper. It will be sufficient to indicate the presence of resistance in the tissues which comprise the joint.

The physiological aberrations of periarticular tissues or the infiltrations of pathology, or both, which characterize the lesion, require a word of explanation. Few, if any, lesions demonstrate these factors symmetrically. Tissue changes may be more marked on one side than the other, more superficial or more deep in different lesions. Wide variations of acuteness and of chronicity exist in different lesions and in different parts of the same lesion. It is this diversity of proportion, type, and location of tissue change which accounts for the diversification in positions, tensions, and impaired freedom of movement in lesions. From this short summary, it may be seen that all manipulations in their application must be adapted in accord with the mandates of the specific peculiarities of the lesion to which the technic is applied.

Having considered the problem of the lesion which is to receive the force, it is now feasible to investigate the problem of the manipulation. It is the intent of the manipulation to overcome the tissue resistance which characterizes the lesion. For the purpose of simplicity, single, intersegmental lesions will be used for discussion. Since the tissue resistance to be overcome involves an interval between two bones, it is essential that force be applied to that local resistance. In theory, in principle, and in practice, it is of first importance that the force be accurately localized to this resistance. Simply stated, one bone must be definitely held or fixed while force is as definitely applied to the other to overcome resistance in the intervening tissue. Too much emphasis cannot be placed upon the necessity for the maintenance of a fixed point against which force may be applied. The practical application of this thought in technic frequently results in a marked change of emphasis in the purpose behind the procedure. The operator specifically directs his attention throughout the manipulation to the maintenance of this fixed point. All other factors are made secondary to it. Ranges of movement and force of movement must be subordinated to the maintenance of this fixation. Forces and ranges of movement sufficient to overcome the ability of the operator to maintain fixation immediately result in the diffusion of the force beyond the joint being treated. Forces and ranges of movement sufficient to overcome the ability of the operator to hold this fixation defeats the first purpose of the manipulation, which is the specific application of force to specifically local tissue resistance. If the operator finds that this fixation has been lost, the manipulation should be repeated, attempting either to increase the force to establish fixation, or decrease the force and range of movement to insure that the fixed point be not overcome and lost. An exhaustive study of the problems of technic, from the standpoint of analysis, instruction, and successful results in overcoming disease processes, has shown with increasing conclusiveness that a fundamental fault with many otherwise successful manipulations lies in the fact that the force is not accurately localized.

Widespread misunderstanding in technic and a great obstacle in the development of technic has arisen from the statement that nature tends toward normal. Although this statement in a general way is true, it is not true in the sense that lesions tend toward selfadjustment if generalized forces are applied to them. The converse is probably true. Perhaps this error in thought is best demonstrated by the persistence of lesions even under the application of skilled treatment. It is probable that lesioned joints resist reduction even at the expense of trauma or relaxation in neighboring articulations. Most experienced operators are aware of the extreme precision with which force must be brought to bear upon this tissue resistance in lesion if it is to be successfully overcome.

Many efforts have been made to define the ranges of movement and amount of force requisite to effect reduction. No such criteria can be founded in fact. Such predetermined rules are inaccurate because they do not include the variations of the lesion itself nor the peculiarities of the individual. Such a rule is applicable to only one specific lesion in one individual alone. The ranges of movement and amounts of force must be determined upon the basis of tissue resistance present in the lesion under treatment. At the beginning of the application of force for adjustment, the operator should attempt to gauge range and force in proportion to the expected requirement. No operator may accurately predetermine these two factors. It is, therefore, best to use manipulations which may be carried out slowly in order that the force may be adapted while the manipulation is in progress in accord with the tissue resistance. Such precision might be considered the criterion of skill in the application of technic.

SUMMARY

1. Attention has been called to those qualities of lesion to which forces are applied.

2. These are all included under the heading of tissue resistance.

3. It has been pointed out that a knowledge of the changes in tissue resistance or tension and the changes in the quality of motion produced by an abnormal tissue tension, make up one basis for the study of lesion pathology. A knowledge of the normal or physiological movements of a spinal joint is essential because the application of force to a lesioned joint must be directed along a physiological plane of movement.

4. Special importance has been noted concerning the necessity of the establishment and maintenance of a fixed point against which force may be specifically applied.

5. Attention has been called to the necessity of adapting the ranges and degrees of force to the ability of the operator to maintain this point of fixation.

6. It has been shown that there is no criterion for range of movement and force in a manipulation other than the specific requirements of the tissue resistance in the joint being treated.

Persistent Occiput Posterior in Labor: Its Cause and Management*

WAYNE DOOLEY, D.O.
Los Angeles

"Persistent occiput posterior" is responsible for a large percentage of the difficulties during labor, which confront the obstetrician. Unfortunately for all concerned, I find in my own work, and from reports of other obstetricians, that the incidence is increasing, particularly in primipara. Therefore it is my desire to discuss briefly some of the most common causes of this condition and the treatment which has proved most satisfactory.

The mechanics of normal labor is such that the large dimensions of the head fit the large dimensions of the bony pelvis. In cephalic presentations the head enters the pelvis with the sagittal suture in the diagonal at an angle of 45 to 50 degrees from the anterior-posterior mid-line of the pelvis. This places the occiput in the right anterior quadrant of the pelvis in case of right occiput anterior position and in the left anterior quadrant in case of a left occiput anterior. As descent of the head occurs, flexion increases and internal rotation takes place, in which case the occiput rotates anteriorly until the sagittal suture is in the anterior-posterior mid-line of the pelvis as the head passes under the symphysis. The head is then delivered by extension.

The mechanism of a labor complicated by a posterior occiput is vastly different from that just described. In this case the head is forced into the pelvis in a transverse position usually with some degree of deflexion and as the head descends, the normal flexion is prohibited and the occiput rotates posteriorly. There are several types to be considered:

1. If the pelvis is small enough to prohibit sufficient descent for the occiput to rotate posteriorly or the powers are not sufficient to force the head deeply into the pelvis, we have what we call a "high transverse arrest". The mechanism is halted in the early stage and the head remains at the pelvic inlet in a transverse position.

2. Next we have the type where the inlet has caused the difficulty in engagement and as the head descends to the middle or largest plane of the pelvis, the occiput finally rotates anteriorly and rapid delivery follows a long period of labor. In order to have this take place, the pelvis must be adequate in the mid-plane and the uterine contractions must be very strong.

3. Then comes the type where the occiput will not rotate anteriorly but rotates to an occipito-sacral position. In this case the sagittal suture is in the anterior-posterior mid-line of the pelvis with the occiput on the mother's sacrum and delivery is finally accomplished in that position, the face coming down under the symphysis.

4. The typical posterior occiput is the most common type. The head enters the pelvis in a transverse position, rotates with the occiput in one of the posterior quadrants of the pelvis, the sagittal suture being in the diagonal. The head is lodged in the pelvis in this position and progress stops. It is obvious that this is a dangerous situation for both mother and baby.

Now that we have considered the mechanics of the condition, let us consider some of the causes. The causes of posterior occiput might be divided into two classes:

1. Those deformities of the bony pelvis which decrease the anterior-posterior diameter of the pelvic inlet to such an extent that engagement though still possible, is difficult.

2. Those deformities or positions of the uterus which hold the fetus in a position unsatisfactory for normal engagement of the head.

In the first classification, the flat or rachitic pelvis is a common cause. It can be recognized by pelvimetry. The most common cause, I believe, is the "jutting promontory of the sacrum". This is the protrusion of an abnormally large sacral promontory into the pelvic inlet which of course decreases the anterior-posterior diameter of the pelvis. There may be an extreme anterior curve of the lower lumbar region, pushing the fourth and fifth lumbar

*Given before the A.O.A. Convention, Milwaukee, 1933.

vertebræ anteriorly until the same effect is produced. These conditions are rarely diagnosed until the time of operative delivery. It is a question whether the fad of a few years ago when the young girls wore the extremely high heels, was responsible for the increase in the number of these conditions. It could have produced the mechanical background for such a state.

In the second classification, we will consider the uterus which is held by postoperative adhesions, the extremely pendulous abdomen and congenital deformities of the uterus. Any or all of these conditions could hold the fetus in a position which would be unsatisfactory for normal engagement of the head.

The clinical course of labor in a persistent occiput posterior is characterized by early rupture of the membranes, normal progress until cervix is about 4 cm. dilated; then a slow, extremely painful labor with the lower back pain being greater in some cases than the pain from the uterine contractions. The fetal heart may be audible over all of the lower abdomen; showing that the back of the fetus in utero may rotate posteriorly as the occiput rotates. The termination of labor will depend upon which type of case is present.

Diagnosis is always an important point in the consideration of any condition. This rule certainly applies here because upon the physician's ability to diagnose a posterior occiput may rest the life of the baby and the welfare of the mother. The clinical course of labor is so typical that it is diagnostic in most cases, but this is a tentative diagnosis and we are only interested in definite and constant diagnostic points. From the preceding explanation one would conclude that in order definitely to diagnose a posterior occiput, it would be necessary to locate the occiput in one of the posterior quadrants of the pelvis. This is done by rectal or vaginal examination. Probably all of us have been taught to diagnose position by locating the fontanels. To me this seems a very unsatisfactory method due to the fact that in nearly every case, the fontanels are obliterated or practically so, as the head enters the pelvis. The occiput is the landmark which we are seeking, so why not locate it directly? It is easily located with the proper technic and is a constant landmark. It is impossible for anyone definitely to diagnose position until the cervix is dilated to from 4 to 6 cm. Therefore when the cervical dilatation will permit, we locate the sagittal suture with the examining finger. The sagittal suture will be either in the transverse or diagonal plane. We next follow the sagittal suture to either end and then it is necessary to differentiate the occipital bone from the frontal bone. This is easily done, for the occiput has a firm, solid feel to the examining finger, while the frontal bone is more unstable and gives less resistance. The frontal bone is divided by the frontal suture while the occiput is solid with no dividing line. The occiput resembles the letter "U" with the sagittal suture extending downward from the base of the letter, while the frontal end of the sagittal suture resembles a cross, the coronary sutures lacking the curve of the lambdoidal sutures, which bound the occiput. During labor the method outlined above will be satisfactory in all cases. However, if one is called in consultation and wishes to make a definite diagnosis of the position before using forceps, the following method is suggested, when the head is molded to an extreme degree. Displace the head sufficiently to allow two fingers to slip around the head and locate the ear. We know that the lobe of the ear points towards the occiput. This method will enable the operator to locate the necessary landmarks and apply the forceps correctly.

The treatment of persistent occiput posterior is to be considered carefully because these cases need treatment and by using the proper treatment we may save the patient several hours of severe labor and at the same time protect the life of the baby. Let us consider the treatment as conservative and operative.

In all cases the cervical dilatation is the difficult problem. Progress will be satisfactory until the head is lodged in the pelvis. The cervix is usually about 4 cm. dilated by this time. Then progress will be very slow and the labor extremely painful. In my opinion this is an ideal place for the use of sedatives. Pantopon gr. 1/3 or dilaudid gr. 1/32 to 1/16 followed by quinetheroil oz. IV to VI given rectally has proved most satisfactory in my hands. This treatment may be repeated in long cases usually with no bad effects. When the cervix is completely dilated and you have definitely located the occiput in one of the posterior quadrants of the pelvis, the time has arrived when you can and should help the patient. In a small percentage of cases the uterine contractions are severe enough to rotate the head either anteriorly or into a posterior sacral with spontaneous delivery following an extremely long and painful labor. The head is extremely long and in the cases where the child is alive, there are nearly always marked pressure symptoms. The mortality rate is high in cases of persistent occiput posterior because of the extreme pressure on the fetal head and also because of the prevalence of uterine contraction rings in long ineffectual labors. We know that a contraction ring is a tetanic contraction of the uterine muscle and the blood spaces are cut off sufficiently to asphyxiate the child in many cases. Therefore I contend that as soon as we have complete cervical dilatation, we should deliver the child and avoid the dangers just mentioned.

In considering operative delivery, let us assume that we have a patient with complete cervical dilatation and a persistent occiput posterior. I wish to describe three methods of delivery, which have been most successful in my hands, in the order of their desirability.

The first method is truly osteopathic in principle. Prepare the patient for delivery and after you have scrubbed, gloved and gowned, insert two fingers into the vagina and working between contractions rotate the head so that the occiput is in the anterior quadrant of the pelvis; that is, you would change an R.O.P. to an R.O.A. or an L.O.P. to an L.O.A. Hold the occiput in this position until the next uterine contraction, then have the patient work with the contraction and in many cases the head will slip down into the pelvis in the anterior position and delivery will be normal from that

point on. It is necessary to dislodge the head slightly to accomplish the rotation as outlined above. This procedure will not work in every case. However, I believe that if the occiput will rotate spontaneously after several additional hours of labor, you can always rotate it manually as soon as the cervix is dilated.

The second method, or the method of choice in case rotation fails, is delivery by version and extraction. I prefer version and extraction to forceps in any case, provided the conditions for doing version are present; i.e., adequate room in the uterus to permit the version; no great disproportion between the passage and the passenger, and complete cervical dilatation.

The third method is delivery by forceps. If the rotation as outlined in the first treatment is unsuccessful and the conditions will not permit version and extraction, we must fall back upon forceps. There are many modifications of the forceps treatment, such as the old Scanzoni maneuver and the later use of Kjelland's forceps for rotation, followed by the application of Simpson's forceps for delivery. However I prefer the manual rotation method. In this procedure, the head is rotated manually until the occiput is in an anterior position. It is necessary to displace the head partially in order to rotate it but this objection is short lived because the head may easily be forced into the pelvis again by pressure on the fundus of the uterus. Then the application of Simpson's forceps is made and the delivery is usually easily accomplished.

In conclusion I would like to repeat my plea for the early diagnosis and treatment of posterior occipital positions. When the cervix is completely dilated or easily dilatable and no progress is evident, it is my contention that delivery is indicated by one of the three methods herein outlined, and that by following this procedure we will reduce the fetal mortality and preserve the resistance of the mother. DeLee makes this statement in one of his works: "We should determine what a patient can *accomplish,* not what she can *endure.*"

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Infant Development and Feeding the First Year*

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In the field of pediatrics, more than in any other field of study, we have brought home to us the great fact of individuality. No two babies are alike. They cannot be treated, nor be expected to develop, in the same way. The factors which govern normal development are as yet very incompletely understood, yet we know without question that growth is greatly modified by intrinsic properties such, for instance, as the balance among the glands of internal secretion. We know, too, that heredity, as well as environment, play important parts.

Since nearly every form of acute or chronic disease impairs growth to some extent, it follows that regular growth is perhaps the best measure of health we possess. It is of the utmost importance that accurate observations upon growth and development be made during infancy and childhood. Such observations make possible the early detection and arrest of many diseases and disorders of nutrition; they should be made a part of the routine physical examination of every child, for it is only by familiarity with the normal that the detection of the abnormal becomes easy.

The development of the child should be checked regularly, not only from the angle of relative weight and height, but also from that of comparative body measurements. Any striking deviation from the normal should be looked into.

WEIGHT

The average weight of a child at birth is seven pounds. It may lose as much as one-tenth of its body weight the first three days, or until the normal breast milk begins to come in; but this weight is generally gained back by the tenth day, or before the baby leaves the hospital. If the baby weighs six pounds or over and is gaining nicely it is put upon a four-hour schedule; if it weighs less than six pounds at birth and when leaving the hospital, it is put upon a three-hour schedule.

Regardless of the type of feeding, we like to have the average baby gain from six to eight ounces a week for the first six months, and from four to six ounces a week the second six months. This may be a little higher than the average, but we find that with the clinic babies, if their general resistance is built up the first six months, they are much less apt to lose weight when they start creeping and walking, and they are less susceptible to the childhood diseases. It helps to raise their general resistance. (In Holt's new tenth edition, just off the press, he also advocates the heavier gain for the first six months.) Broadly speaking, a baby should double its birth weight at five to six months, and treble it at one year. During the first two years, weight is figured according to birth weight and age, but after that is figured in proportion to height. Anything more than 10% below or more than 15% above average is abnormal.

GROWTH

The average birth length of a baby is between 19 and 20 inches. During the first year of life the baby should grow 9 inches; the second, 4; the third, 3½; the fourth, 3; the fifth to eleventh, 2 inches a year. Comparative measurements should approximate these figures:

Trunk. At birth the trunk is relatively long and

*Delivered at the 37th A.O.A. Convention, Milwaukee, 1933.

the extremities short. The middle of the body at birth is ¾ inch above the center of the umbilicus. The limbs are 43% of length at birth, 54% of length at 5 years and 60% of length at 16 years.

Head. At birth the average circumference is 13½ to 14 inches. There is an increase of 3 inches the first 6 months and 1 inch the second six months, or 4 inches during the first year. The child's head grows more during his first year than during all the rest of his life. This is very important to know when checking babies who have had head injuries. It is important to give the mother instructions in maintaining shape of baby's head.

Sutures. Sutures should all be closed by 6 months, not later than 9 months.

Fontanels. The posterior fontanels should be closed by the end of the second month, the anterior by the end of the eighteenth month (14 to 22 months). At 1 year anterior fontanels are usually three-quarters closed, and it is abnormal to have them open at 2 years. The closing is delayed in rickets, cretinism, hydrocephalus and hereditary conditions. The closing comes early in microcephalus.

Chest. At birth, the nipple line measurement anteroposteriorly is about the same as, or one-half inch less than that of the head. At 1 year the 2 measurements are about the same, and at 2 years the average circumference of the chest exceeds that of the head. The average growth is 1 inch a year until the fifteenth year. The average is then 30 inches.

Abdomen. Up to 2 years the abdomen is the same in circumference as the head and chest. The average length of the intestinal tract at birth is 13 feet. It increases about one-third in length the first year, making it 17 to 18 feet. The average large intestine at birth is 26 inches and increases to 35 inches. The ascending and descending colons are short in proportion to the transverse colon. The sigmoid at birth is destended with meconium, and throughout infancy extends higher into the abdomen than during later life. Therefore in constipated babies, sigmoid distention persists, the whole colon dilates and the pot-belly develops. These conditions are also due to deficiency diseases in which atonic musculature develop.

Special Senses. The development of the special senses, as well as the growth of the body parts, may be checked for normality. By the end of the third month, the muscles of the eyes should be coördinating. The child should recognize objects at the end of 6 months. A child is deaf the first 24 hours, then the hearing is keen. At birth the sense of touch is present in the tip of the tongue and lips. By the third month the entire body is fairly sensitive. The sense of taste is keen from birth, especially to sweet, sour, and bitter.

Speech. The ability to speak varies. The average child is saying a few words at the age of 1 year, and at 2 years is able to put two or three words together in sentences.

Dentition. The first 20 teeth erupt between the sixth and twenty-second month.

ENVIRONMENT AND HYGIENE

The complete physical examination of a baby does not stop, however, with a check-up on weights, measures, and sense development. It inquires as well into the three factors upon which that normal weight and height development are dependent: inheritance, environment, and nutrition. The first of these will not be discussed here, aside from recognition of the fact that certain diseases and disease tendencies are inherent, and that inherent endocrine function has much to do with development.

As physicians, we should never be too busy to discuss with mothers the paramount importance of giving their babies the best of hygienic care and environment. They should have impressed upon them the necessity of regularity in feeding and sleeping, of proper bathing routine, of hygienic care of the baby's clothing, and of sufficient exposure to sunshine. No less important is the mental attitude of the mother.

The normal development of the child's nervous system demands quiet and freedom. The brain of an individual develops more during the first year of life than during all the rest of life. It is to avoid undue stimulation or fatigue that babies should be left in their nurseries almost entirely. Many psychologists maintain that personality is very largely determined during the first years of life. Peculiarities are often traced to mental injuries received during those years. After the fifth year, emotional and intellectual habits become increasingly difficult to change.

FOOD

Dr. Holt says "Nutrition in its broadest sense is the most important branch of pediatrics." A knowledge of its fundamental principles is essential to the physician if he is to be able to apply preventive and corrective measures. Statistics show that most deaths during the first year can be traced directly or indirectly to nutritional errors, and those not resulting fatally may lead to rickets, anemia, scurvy, and similar diseases.

From an osteopathic standpoint, I would say that each case is a law unto itself, in that all have inherent tendencies which will show up in spite of environment and food. Therefore it is impossible to give rules in infant feeding that will include all babies. Each case must be treated as an individual. A baby's weight and growth should be the guides in his feeding. A baby's mechanism is taxed to capacity in every way during its first year of life, which accounts for the high mortality rate of 14 per cent during the first year. For that reason it would seem that we do not pay sufficient attention to early infant care and feeding.

BREAST MILK AND MOTHER'S CARE

In feeding a baby, we always prefer breast milk. These cases cause much less worry for the doctor, for the first six months anyway, and the old saying "the baby has had a good start" generally applies, providing the mother takes care of herself, and her milk is sufficient. When mothers come to us complaining of not having enough milk, we always check into the situation carefully, and generally find by rearranging the mother's diet, providing more rest, and giving manipulative treatment to free the ribs and to stimulate the thoracic region, her milk will increase.

SIMPLE FORMULA.

In case the baby is on artificial feeding, we find that the more simple the formula the better, and in our infant feeding clinic we made it a rule never to change the diet of a new baby until we have had a chance to see, treat and study the case. Oftentimes we have found that the trouble could be eliminated

without changing the type of feeding. Many mothers feel that if they follow the health commissioner's or the Government charts on infant feeding to the letter, they are raising their babies according to Hoyle. These charts give the feeding for an average baby of three or six months, and the mother in trying to follow this explicitly, forgets that her baby may not be one of the average cases. This situation has brought the development of the many child welfare stations in every community, where mothers can go at regular intervals and receive individual advice.

TYPES OF ARTIFICIAL FEEDING

The types of artificial feeding include modified cow's or goat's milk, on the one hand, and prepared feedings (Lactogen, S.M.A., Dryco, Similac, etc.), on the other. While the selection of the food should be determined by the nutritional requirements of the individual baby, certain basic essentials are necessary. The milk or preparation should contain sufficient protein, carbohydrate, mineral salts, water, and vitamins A, B, C, and D. The food must be free from harmful bacteria and must be digestible.

The great majority of clinics advocate the use of some form of modified cow's milk whenever necessary. We use as milk modifiers dextrimaltose, lactose, Karo syrup, honey, and occasionally brown sugar. We have also used Lactogen and S.M.A. We have used all of these foods with good results. Many babies came to us from doctors in different parts of the country. These babies were on different formulæ and when we found the child gaining as it should, we did not change the formula.

In building a feeding formula, we allow a certain number of calories for every pound of body weight. During the first week of life body metabolism is low. The second week it is increased, and requires 55 to 60 calories a pound. This gradually decreases up to six months, and we allow 45 to 50 calories a pound. During the second six months, the body metabolism further decreases, and we allow 40 to 45 calories for every pound of body weight.

A simple system is to allow, at one month, 500 calories for every 24 hours; at 2 months, 600; 4 months, 700; 6 months, 800; 9 months, 900; 1 year, 1,000; 2 years, 1,200.

After determining the number of calories required, we must next determine how much is to be protein, carbohydrate, fat and other parts of the diet. We base our decision on these facts:

Protein. 1 gram gives off 4.1 calories and the baby takes in the form of breast milk 2.5 ounces a pound body weight each 24 hours, and in cow's milk, 1.5 to 2 ounces a pound body weight.

Carbohydrate. 1 gram gives off 4.1 calories and the baby takes not less than 1 per cent of the body weight or .15 ounce a pound if breast fed. In cow's milk feeding one-third is in milk and two-thirds supplied as other carbohydrate, as dextrimaltose, or 1 part carbohydrate to each 10-15 parts milk.

Fats. 1 gram gives 9 calories. There is no occasion for concern here, because a child gets a normal amount either on breast milk or cow's milk.

Thus, in order to figure out the full capacity feeding for a baby, and one that will contain the proper proportions, it is necessary to know the age, weight, birth weight, and proper weight. The number of calories for 24 hours, as well as the number of ounces of milk and carbohydrate, may then be determined.

AVERAGE CASE

According to one authority, a normal infant, 1 month old, that weighs 8 pounds, with a birth weight of 7½ pounds, should be on a four hour schedule, or 6 feedings every 24 hours. The formula is: 8 (body weight) times 1½ equals 12 ounces milk, times 20 (number calories to ounce of milk) equals 240, the number of calories the baby should be getting in milk every 24 hours. To that should be added 1 ounce, or 120 calories carbohydrate and 12 ounces water (6 times 4). The total number of calories for 24 hours is then 360.

The ideal feeding, other writers tell us, is 416 calories every 24 hours (8 times 52, calories to pound of body weight). This is the full capacity feeding. It is easy to build up a formula with the addition of milk and carbohydrate, but it is always best, with modified cow's milk, to start a baby on a dilute formula until he becomes adjusted to it, and then to increase it gradually.

SHORT CUTS TO FORMULAE

For a short cut in the determination of a formula, the age plus 2 gives the amount in ounces at each feeding. This multiplied by the number of feedings a day gives the amount for 24 hours. To determine how much of that feeding (full capacity) should be milk, subtract 4 from two times the baby's weight. The remainder will be, of course, carbohydrate and water.

This table of measurements of carbohydrates is offered as a guide:

Dextrimaltose	4 tbs	1 oz	120 C
Cane sugar	2 tbs	1 oz	120 C
Milk sugar	3 tbs	1 oz	120 C
Karo syrup	2 tbs	1 oz	120 C
Honey	2 tbs	1 oz	120 C

A supplementary feeding, to increase the calorie intake, is often made by adding honey to the water. Mothers usually prefer teaspoon to tablespoon measurement, so it is well to figure the honey on the basis of 20 calories to the teaspoon (120 divided by 6, since there are three teaspoons to a tablespoon.)

CARBOHYDRATE TOLERANCE

The carbohydrate tolerance in the use of sugar is 1½ ounces to a pint and 3 ounces to a quart until the child is 6 months old. It should then be reduced, from 1 ounce to 11 pounds body weight, to 1 ounce to 20 pounds body weight, until at one year the child is taking 28 to 32 ounces straight milk in four feedings. The diet is, of course, supplemented by this time with fruit juices, vegetables and cereal.

In the use of dextrimaltose, 1 ounce to 10 pounds body weight (4 tbs, or 120 calories), and 1½ ounces over 10 pounds body weight (6 tbs, or 180 calories).

These are but a few of the high points in the care and feeding of a child during the first year of life. There is nothing more important. A firm structure must stand upon a solid foundation. If we are to have healthy adults, we must give them that solid foundation of nutrition during their first year of life.

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Principles of Manipulative Treatment

The Low Back Problem

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XV

STATISTICS AND SUMMARY

The case records and roentgenograms of the 540 patients on which so much of the material in this series of articles was based, yield the statistics presented in this final installment. I examined and treated these patients during the period from 1921 to 1932. Only cases in which all records were complete have been included. As far as possible the series has been restricted to patients presenting backache due to a structural or mechanical irritation. In seventy-six other patients, not included in the series, there were low back symptoms due to reflexes from such causes as acute appendicitis or renal calculus or to the toxemia of an acute infectious fever. Of a total number of 616 patients examined during this period and presenting distinct pain in the lumbar and sacral regions, 540 cases, or 88 per cent, were due to structural mechanical causes, and only 12 per cent to visceral and other disease.

In preparing Table I, which gives the general classification of the exact mechanical cause of the low back pain, some difficulty was encountered in a number of patients in determining just which etiologic factor was *truly primary*. No small number presented several of the listed causes. For example, in an adult with a congenitally dislocated hip it is difficult to estimate which produces more havoc in spinal and other structure above—the actual shortness of the support, or the error of locomotion[1] from the defective articulation. In these various complicated cases the *primary* cause was finally determined from treatment results, ease of elimination or sequence of symptomatic disappearance.

TABLE I—ETIOLOGY OF LOW BACK PAIN

	No. of Cases	Percentage
Primary Actual Short Lower Extremity	345	64
Primary Errors of Locomotion	32	6
Primary Psoas Fibrositis	46	8.5
Primary Sacro-iliac Maladjustment	33	6
Primary Lumbar Maladjustment	22	4
Primary Upper Structural Maladjustment	3	.5
Congenital Deformities	51	9.5
Other Causes	8	1.5
Total	540	100.0

NOTE: For etiologic factors listed as other causes see Page 245, Jour. Am. Osteo. Assn., February, 1934.

In the above table attention is called to the great number of patients presenting Primary Actual Short Lower Extremity. In 345 cases out of 540 the actual inequality of the length of the bones of the lower extremities, as measured by the *standing* physical and roentgenologic methods, amounted to over one-half centimeter. In all cases, correction for shortness in the extremity was made by methods discussed in previous papers, and low back strain was eliminated. Favorable results were the rule, and communications from many other physicians in the last two years report similar results.

It should be noted also that the two other items of which little has been written heretofore, viz., locomotive errors and psoas fibrositis, are frequently encountered. When these are added to the short lower extremity cases, the total is 423, or 78.5 per cent of all cases. No single principle in the technical analysis of patients suffering from low back distress has yielded greater results and satisfaction to the writer than the appreciation of the importance of these neglected etiological factors.

TABLE II—CAUSES OF SHORT LOWER EXTREMITY

	No. of Cases	Percentage
Simple Unequal Development	183	53
Epiphyseal Injury Before Maturity	4	1
Fracture With Shortening	36	11
Fracture With Lengthening	25	7
Weak Foot With Diminished Support	5	1
Epiphyseal Irritation With Lengthening	27	8
Dislocation of Articulations	9	3
Unilateral Coxa Vara	8	2.43
Arthritis	4	1
Perthes' or Legg's Disease	2	.57
Postsurgical Shortening	5	1
Sacral and Innominate Deformities	9	3
Miscellaneous	28	8
Total	345	100

NOTE: For types included in this last classification see Page 256, Jour. Am. Osteo. Assn., March, 1932.

The multiplicity of causes capable of producing actual inequality in the lengths of the lower extremities as shown in Table II will explain why the condition is common. This table also shows that simple unequal development is the most frequent cause of inequality in lower extremity lengths. The reason for this was explained in an earlier article. Most of the other items are self-explanatory.

Table III shows the different locations of pathology which affect lower extremity movement and, consequently, the process of locomotion.

TABLE III—CAUSES OF ERRORS OF LOCOMOTION

	No. of Cases	Percentage
Restricted Motion of any Articulation in Lower Extremity	23	27
Primary Actual Short Lower Extremity	52	62
Disease of the Central Nervous System	4	5
Other Causes	5	6
Total	84	100

It will be noted that Table III shows a greater

total of cases of this condition than appeared in Table I. It will also be seen that if Short Lower Extremity is not included, the total member is the same as in Table I. This is explained by the fact that Table III includes those cases of short lower extremity in which, due to extreme shortening, the locomotive error was a striking feature. This is done to emphasize the fact that in many cases, 52 per cent of this entire group, short extremity is *the* cause of locomotive error, which error in reality is the damaging influence.[2] The other items in Table III were explained in detail in an earlier article. Their ability to produce aggravating recurring lower back symptomatology will be understood after its careful reading.

TABLE IV—PRIMARY PSOAS FIBROSITIS

	No. of Cases	Percentage
Bilateral	7	15
Unilateral	39	85
Total	46	100

In the article discussing primary psoas fibrositis, it was explained that roentgenologic investigation discloses innumerable possible causes of minor, and usually unrecognized, states of psoas muscle inflammation. Persistent mechanical tension, local infection, systemic toxemia, structural maladjustment such as lumbar or sacro-iliac lesions, and visceral disease all can produce a secondary, but low grade, psoas inflammation. It was also emphasized that *only one cause is really primary*, per se, and that that cause is *sudden local trauma*. Therefore all cases in Table IV showed a distinct traumatic history. They required specific psoas muscle therapy, which was described in the article upon psoas fibrositis. The other causes of inflammation and their treatment were described in detail in the same article. Psoas fibrositis is an extremely important and often neglected primary cause of low back pain. There is so much to be known about it that no one is likely to have an exhaustive knowledge of it.

TABLE V—ETIOLOGY OF PRIMARY SACRO-ILIAC MALADJUSTMENT

	No. of Cases	Percentage
Forced Lumbar Lordosis Transmitted to Sacrum	3	9
Forced Lumbar Forward Bending Transmitted to Sacrum	2	6
Forced Torsion of Sacrum Backward on the Right	17	51
Forced Torsion of Sacrum Backward on the Left	10	31
Forced Side-bending of Sacrum	1	3
Total	33	100

It may surprise some that so few *primary* sacro-iliac maladjustments were found in the series. The article on sacro-iliac lesions explained that the movements causative of the *true primary* sacro-iliac lesion are encountered suddenly and that there is considerable injury to the articular structure. It was there explained that most sacro-iliac lesions are compensatory rather than primary. For that reason the real primary causes named in the preceding tables should first be sought. It is the doctor who is able to visualize all of the forces exerted on the lower back who will be able to understand the diagnosis, the treatment, and the elimination of primary and compensatory pathology alike. Various forced movements produce the traumatizing effect to the sacrum mentioned in Table V, which, in turn, strain or lesion the sacro-iliac articulation. The analysis of these movements given in the table is as accurate as the history and the examination of the results found in the structure of the sacro-iliac mechanism permits. Usually there is a combination of the stresses named, with one predominating.

It was found impractical to compile statistics of much if any value, on the causes of or the various types of Primary Lumbar Lesions. There were only twenty-two patients who presented true Primary Lumbar Maladjustments, the reason for the small number being the same as for the few primary sacro-iliacs. These were all traumatic, being primary and not compensatory. Sixteen exhibited extension-rotation side-bending lesions, nine of the fourth on the fifth lumbar, three of the third on fourth, one of the second on third, three of the first on second, and none of the lumbosacral junction. Five primary disk injuries were encountered, and one combination right curve in hyperflexion of the lowest three segments. Of the sixteen extension-rotation-side-bending type, eleven were posterior on the right and side-bent, concave on the right; five concave and posterior on the opposite side.

TABLE VI—TYPES OF CONGENITAL DEFORMITIES

	No. of Cases	Percentage
(a) Congenital Deformities That Unlevel Sacrum:		
Sacral Maldevelopment	5	10
Coxa Vara or Valga	2	3
Congenitally Maldeveloped Innominate	4	8
Congenital Dislocation of the Hip	4	8
Total	15	29
(Primary Short Lower Extremity when congenital, not included.)		
(b) Congenital Deformities That Do Not Unlevel Sacrum:		
Sacralization of the Fifth Lumbar Vertebra	13	25
Lumbarization of the First Sacral Segment	2	4
Spondylolisthesis	6	12
Spina Bifida Occulta	4	8
Lumbar Rib	1	2
Extra Lumbar Vertebra	9	18
Extra Parts of Lumbar Vertebra	1	2
Total	36	71
Grand Total	51	100

The figures upon Primary Upper Structural Maladjustment are likewise of little value. They produced low back pain because of compensatory lumbar change. One of the three listed consisted of fracture and detachment of the spinous process and laminae of the

eleventh dorsal. In one case contracture in the posterior ligaments occasioned marked lordosis of the lumbar region, with resulting pain. In another, a marked dorsal kyphosis, due to fracture of the body of the eighth dorsal, resulted in an extreme lessened lumbar lordosis to maintain equilibrium, with much distress at the lumbosacral junction. The third case was quite similar to the last, with compression fracture at the twelfth dorsal. These compensatory changes in balance are important in teaching the necessity of visualizing the body as being interdependent in all its parts, whether closely related or far removed.

Table VI is almost self-explanatory. The article upon Congenital Deformities attempted to show that deformities which serve to unlevel the top of the sacrum are the most productive of low back pain. They are listed in the table. This type requires greater compensatory change than do those deformities which do not disrupt lower spinal support.

The second class of deformities was shown to cause low back discomfort because of minor weakness, strain or irritating pressure. Classifying congenital deformities in these two divisions clarifies the treatment methods.

TABLE VII—OTHER CAUSES OF LOW BACK PAIN

	No. of Cases	Percentage
Metastatic Malignancy	2	25
Kümmell's Disease	1	12.5
Fractured Transverse Processes	1	12.5
Hypermobile Symphysis Pubis	2	25
Unknown	2	25
Total	8	100

The etiologic factors of low back pain appearing in Table VII, while appearing last in the series, are quite important. Metastatic malignancy should be recognized in time to prevent manipulative treatment. Two cases in the series of 540 would seem to make this condition one on which constant attention could well be focused. The other items in the above table are better known and require no comment.

Most osteopathic physicians are characteristically earnest in their desire to relieve human discomfort. To this end they labor harder than their allopathic contemporaries. In practically all fields allopathy is sadly behind osteopathy in its demonstrated accomplishments in relieving sufferers. Acute infectious diseases, non-surgical visceral disease and all orthopedic conditions respond most practically to osteopathic ministrations. Should we in osteopathy rest at this point?

The practical value of a therapeutic idea, new or old, is measured directly by its ability to relieve human suffering. Unless that idea is tested and tried, its true worth is unknown. Unless new ideas that are practical and prove true are used, there is no progress.

It is hoped that the osteopathic principles set forth in this series of papers will be thoroughly tested by many and found to be of true value, and that many other physicians will in time add the weight of their thought and experience. Together may we "Dig On."

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Urology and Its Value to the General Practitioner

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VIII

THE URETERS

The ureters have, so far as is known, but one function: to convey the urine from the kidney to the bladder. The ureter is a fibromuscular organ from eleven to twelve inches in length, a little longer on the right side and slightly longer in men than in women. Its total diameter is about one-quarter of an inch with a lumen measuring about one-sixteenth of an inch. It is lined with transitional mucous membrane, continuous with that of the bladder and renal pelvis which is of the same type. It is impossible, therefore, in a urinary examination to say from which of these three organs certain cells found in the urine originated.

The ureter, like the bladder, has three coats: mucous, muscular and fibrous. The outer, loosely constructed fibrous coat carries the principal vessels. The middle or muscular coat consists of three layers of smooth muscle, an outer and inner longitudinal layer and a middle circular layer which is the best developed of the three. The inner or mucous coat has two layers, the submucous, composed of fibroelastic tissue, and the innermost layer composed of stratified transitional epithelium.

Arteries.—Here, in the arrangement of the ureteral vessels, is a striking example of nature's wisdom and forethought. The blood vessels form a plexus of tortuous branches in the loose fibrous coat, running longitudinally from which many small tributaries arise; they anastomose freely and penetrate the muscular coat in many places, reaching the submucous layer where a similar but finer plexus is found. The capillaries are formed from the plexus, those running inwardly supply the epithelium, the muscular coat receiving those that run outward. This arrangement of the vessels takes care of the ureteral blood supply during its normal contraction and expansion, and in the sometimes enormous distension when dilated from disease. The blood supply comes from the renal, spermatic, ovarian and vesical arteries.

Lymphatics.—These vessels are found principally in the muscular and fibrous coats. The important thing to remember is their drainage which is in three directions. The pelvic portion drains downward toward the bladder, the middle or abdominal portion drains into the pelvic and lumbar lymph glands, while the upper portion goes toward the renal lymphatics.

Nerves.—These form a network around the ureter and have ganglia at the upper and lower ends. The nerves come from the sympathetic system, derived from the renal, inferior mesenteric, ovarian or spermatic and hypogastric plexuses.

It will not be necessary, and scarcely appropriate in this article, to discuss in detail the anatomical relations of the ureter. They are chiefly of interest to the surgeon and can be found in any urology or anatomy text. Suffice it to say, the ureter is inti-

mately associated with the female pelvic organs and it is very easy to injure it when operating on these organs. This will be discussed a little later.

Anomalies.—These were discussed briefly in connection with renal anomalies and are almost infinite in variety. They may occur with an anomaly of the kidney or just as frequently when the corresponding kidney is normal. They are due to some failure of the renal bud to develop properly in the embryo.

These ureteral anomalies have been divided into two types: the complete double ureter and the incomplete double ureter. In the complete type each ureter will have an individual opening in the bladder, while in the incomplete the ureters join above the bladder and have a common opening in that organ. There are unlimited variations of ureteral anomalies; Cabot[1] pictures twenty-four of them.

With the present-day methods of diagnosis they are usually easily discovered but very frequently they never give any trouble and are found only accidentally. But these anomalies must be kept in mind and watched for. As has been stated, these anomalous kidneys and ureters are more susceptible to infection and other disorders than normal ones, so in every cystoscopic examination extra ureteral openings should be carefully looked for. The pyelogram, especially when an intravenous injection of the dye is made, will usually demonstrate them clearly and reveal the incomplete double ureter which cannot be seen through the cystoscope as it has only one opening in the bladder. These anomalies occur with greater frequency than has been supposed.

Traumatic Injuries of the Ureters.—This subject was considered briefly with injuries to the kidneys with which they are commonly associated. From its very nature the ureter usually escapes injury because of its length, its elasticity and its protected position. It is attached at either end to a movable organ and can be subjected to considerable misplacement with safety. Very violent accidents which cause rupture of the kidney or bladder may and often do involve the ureter.

When the injury is to the ureter alone early diagnosis often is not made because the uncertainty of the symptoms cast no suspicion on the ureter. There may be a slight hematuria which is transitory and easily overlooked if there is no injury to kidney or bladder.

The correct diagnosis is not so often missed now as it was before the advent of the cystoscope and roentgenography. In case of doubt, the cystoscope should be used and a renal catheter inserted sufficiently to plug the ureteral outlet. An opaque medium should then be injected a little more than sufficient in quantity to fill the ureter and renal pelvis while taking the radiograph. Any leakage from the ureter will be clearly demonstrated and will do no harm to the patient.

Treatment is of course surgical if the ureter is ruptured, and the nature of the injury will determine whether the ureter can be repaired, or whether the complete removal of the kidney is necessary. If the ureter is merely contused, palliative measures will suffice but one should determine later whether or not stricture results.

Surgical injuries of the ureter are quite frequent. Their anatomical relationship to other strictures in the pelvis makes them particularly susceptible to injuries during operative procedures. This is especially true in operations on the female organs where the injuries most frequently occur.

The pelvic portion of the ureter is often displaced by cysts and tumors and, under those circumstances, being in an abnormal position, it is easy to cut, ligate or clamp it. Before operating one should of course review the anatomy of the part, if it is not thoroughly familiar, and if in any doubt, while operating, it is a simple matter to trace the ureter by palpation from the kidney to the bladder.

A surgeon with considerable experience told me he had performed a hysterectomy early in the morning and up to late that evening his patient had passed no urine; catheterization had revealed an empty bladder. This condition remained unchanged until the third day, when there was nothing left to do but to reopen the abdomen. Both ureters were found to be ligated, fortunately, instead of severed. Within the next few hours after the removal of the ligatures, the patient passed large quantities of urine and recovered with no apparent injury. The hazards in such an experience are rather great for the patient, to say the least.

The structure of the ureter is quite simple and, its sole function being to convey the urine from the kidney to the bladder, it is seldom if ever subject to primary disease. In acute renal infections the ureter is usually tender and thickened on palpation, although this may not be true in a chronic pyelitis.

In a chronic pyonephrosis it will usually be thickened and tender but not to the same degree as in renal tuberculosis and the typical nodular character of tuberculosis is absent. In cystitis from pyogenic infections the ureter is often found to be tender and thickened.

Ureteritis is very rarely secondary to appendicitis but is frequently a sequence of cervical cancer and of some cases of pelvic inflammations.

Tumors pressing upon or displacing the ureter may cause stasis and dilatation and in this way favor infection.

Stricture of the urethra and prostatic hypertrophy also may cause ureteral dilatation and infection.

Spinal disease interfering with the nerve supply to the bladder and ureter may cause partial or complete paralysis of these structures, hence dilatation and infection.

The pressure of an enlarging uterus during pregnancy may cause ureteral dilatation and infection, but Cabot says he has found most of them the result of a preëxisting infiltration in the ureteral wall.

Papillomas may extend from renal pelvis and epitheliomas from the cervix, but primary neoplasms of the ureter are practically unknown.

Syphilis of the ureter is thought to be fairly common and is responsible for stricture the same as any other infection.

STRICTURE OF THE URETER

Stricture of the ureter is a condition upon which I wish to place considerable emphasis; it is one of the *commonest of all causes of abdominal pain.* Stricture is not obstruction of the ureter and comparatively speaking, seldom causes it. Stricture, to use the defi-

[1] Cabot, Hugh: Modern Urology, Ed. 2, Vol. 2, Philadelphia, Lea & Febiger, 1924, p. 259.

nition of Cabot, is "an inflammatory condition of the ureteral walls resulting in infiltration and varying degrees of narrowing of the lumen".[2]

In the past few years considerable literature has been collected on the subject and the malady found to be common. Cabot says he found it present in 2,000 patients in eight years. If this is the experience of one man, and an expert at that, how many cases have gone unrecognized, being treated for something else or not at all? I expect to give some case reports a little further on which will prove its frequency in my own limited experience.

Etiology.—The natural question is, of course, what is the cause of so universal a malady? Inflammation is the chief cause, in the opinion of the majority of investigators. But what caused the inflammation? Thereupon hangs an investigation opening an extensive field.

There are causes for ureteral stricture other than inflammation from infection, such as gunshot and stab wounds, and severe accidents producing trauma but these are rare. Syphilis and ureteritis cystica can be included among the causes, and syphilis more often than was once thought.

Injury during surgical operations in the female pelvis has been mentioned.

Inflammations of the ovaries and tubes seldom if ever cause ureteral stricture. This may seem strange considering their intimate relationships.

By far the greater number of cases of ureteral inflammation have foci of infection about the head, such as infected teeth, tonsils or sinuses, and in most instances the symptoms will improve if the foci are treated.

The foci in the head, however, are not the only offenders; any chronic suppurative focus may be at fault. Infection of the gall bladder, skin infections such as ingrowing toe nails and onychia and bone infections are to be thought of when searching for causes.

Chronic infections of the teeth, tonsils and sinuses, and intestinal tract, which cause secondary infections in the ureteral walls are admittedly the most frequent causes of simple chronic ureteral stricture, the commonest type. The fact that stricture is nearly always bilateral is evidence of the systemic origin of the infection.

It is seldom if ever congenital. Ureteral stricture is found mostly in the third and fourth decades of life, and in those few cases found in children, wherein they manifest themselves by hydronephrosis and pyelitis, one will also find an associated tonsillar or sinus infection.

Very frequently only one side will cause trouble. This led early investigators to miss the bilateral character of the malady. With the advent of the roentgen ray and instruments of greater precision it has been found that in many of the cases the symptomless side is strictured as well. It is highly important that the symptomless side be examined because frequently the most damaged kidney will be found on that side.

As before mentioned, the strictures oftenest occur where the ureter has its principal blood and lymphatic connections, which are at the bifurcation of the internal iliacs and in the broad ligament region. When passing ureteral catheters or bougies the strictures will usually be found from one to two inches above the ureteral opening or from one to two inches below the pelvic brim. These locations are still further evidence of the systemic origin of the infection.

Very often no treatment is necessary save treatment to the infective focus. When this is cared for the urinary symptoms disappear. If the roentgenogram shows a decided stricture, it should be dilated to prevent any possibility of back pressure on the kidney. Sometimes, perhaps months or years later, following an attack of some acute infection, these strictures will return, presenting all the symptoms they did originally.

Gonorrhea as a cause for ureteral stricture can be disregarded.

It is highly important that strictures of the ureter be diagnosed early to prevent the resultant injury to the kidney, but unfortunately this is not possible. While most cases present well marked symptoms, some of them do not, and the case may result in advanced destruction of one or both kidneys before the patient is aware of any trouble.

With greater care in taking a history of the various cases that present themselves, one will frequently bring to light symptoms pointing definitely to ureteral stricture—symptoms disregarded by the patient as they had caused him little or no inconvenience.

Dietl's crisis does not always mean floating kidney. The victim may have ureteral stricture.

The urologist is very apt to miss these strictures if he depends merely on passing a ureteral catheter. If he will pass a bulb, the same as when searching for urethral stricture, he will find them more readily.

While most cases of hydronephrosis are relieved by dilating the ureter and draining the renal pelvis, in some, owing to a secondary obstruction between the renal pelvis and the ureter, this will not be possible and operative treatment will be necessary.

This secondary obstruction may be due to a valve-like action between the pelvis and the upper end of the ureter which, says Cabot, is "caused by rotation of the prolapsed kidney or a rotation on the ureteral action from the mere filling of the enlarged kidney".

Most cases of chronic or recurrent pyelitis are very likely caused by the poor drainage resulting from ureteral stricture.

Many a person has been operated on for calculus when all he had was a stricture. Ureteral stricture has been considered as the leading cause for stone formation but it is probably merely one of the causes as mentioned below. The cause of urinary calculus is not well understood, but it is thought to be a combination of mechanical, bacteriological and chemical factors within the kidney. No doubt stricture with the resultant stasis is an important predisposing factor in stone formation, but if stasis alone were at fault urinary calculus would be far more common than it is.

It is Hunner's opinion that early treatment of stricture, with the eradication of foci of infection, will without doubt reduce the incidence of stone, and in those who have already developed stone, the intelligent handling of the stricture is the best insurance against its return.

Stricture does cause stasis, and if there is a coexisting focus of infection elsewhere in the body, and

[2] Ibid., p. 207.

we have seen that there usually is when stricture of the ureter occurs, then we have present two of the principal factors necessary for stone formation: the mechanical and the bacteriological.

The chemical factor, which is the third of the triad mentioned, can be brought about in this stagnant urine by the cocci, especially, as they have the faculty of splitting urea into ammonia and water, which produces an alkaline urine. Thus phosphatic calculi can be produced. The cause of acid stones is not known.

Hunner[3] says: "Briefly summarized, my views are as follows: Most ureteral stones are formed in a previously existing ureteral stricture area. Many migratory stones have formed in a stricture area and because of the dilatation of the ureter above the stone, the stone is set free and changes position in the dilated tract. Many kidney stones have as a nucleus one of these migratory ureteral stones. With the accretions derived in the kidney the stone may begin another descent, and because of its increased size it may stop in any portion of the ureter above the stricture area.

"It is because ureteral stricture is usually bilateral that we so often see bilateral ureteral and kidney stones, and so often see stone formation in the opposite kidney after operation on the kidney primarily affected.

" . . . Every patient with urinary calculus whose physical condition permits, should have both ureters studied for the presence of stricture, and if such be found on the apparently uninvolved side this should be treated until good drainage is established before operation on the involved side."

After renal stones have been removed surgically it is very common for them to recur because no attention has been paid to the ureteral stricture. This is especially true when the stones are bilateral.

These strictures must be dilated. It can be done at the time of the operation by passing the bougie in a retrograde fashion, although one must be careful not to overdilate; for the resulting edema from traumatization may close the ureter completely, in the presence of free drainage following the operation.

During convalescence from the operation it is good treatment, and necessary in the presence of stricture, to pass ureteral catheters by the vesical route for the double purpose of dilatation and drainage. Through these one may wash out blood clots and irrigate the renal pelvis. Naturally the drainage alone will clear up any infection, postoperative.

Hematuria.—In the beginning of these articles, it was stated that blood in the urine is not an infrequent phenomenon, the patient paying little attention to it unless accompanied by pain, and only too frequently lightly regarded by the physician in the absence of other symptoms.

Investigators have found that these cases of essential or idiopathic hematuria, so-called, will show organic changes in the kidney or its capsule, or a hypermobility, many of them showing nephritic-like changes.

When a patient presents himself with hematuria, a thorough examination is in order. In the vast majority of cases a strictured ureter will be found and if it is well dilated, the bleeding will cease. Many cases have had to endure nephrectomy, nephrotomy, decapsulation, endless therapeutic measures and what not, when all that was needed was ureteral dilatation.

A search must be made for foci of infection and these cleared up if possible, for it is to be remembered that they are usually the cause of the stricture.

Chronic Nephritis.—While not a urological problem, strictly speaking, chronic nephritis can in a large number of cases be greatly benefited and life prolonged by searching for and dilating ureteral strictures. This is quite true in young people who show signs of chronic nephritis, such as lumbar backache, lassitude, headache, high blood pressure, edema, etc.

Bladder Symptoms and Ureteral Stricture.—Cabot says he knows of no bladder symptoms usually associated with cystitis whose origins may not be found in ureteral stricture. That statement is of the utmost importance.

Partial or complete incontinence is commonly found in the presence of chronic trigonitis and urethritis, but, not infrequently, during the examination of a patient with incontinence one will find the mucous membrane of the trigone and urethra normal in appearance. In these cases we usually find ureteral stricture, the dilatation of which will relieve the victim of his symptoms.

Those with enuresis persisting beyond the years of early childhood, usually have ureteral stricture and back of this an infected tonsil or some other focus of infection. Sometimes the removal of the infection will cure the enuresis but frequently the ureters will have to be dilated. If the removal of the focus of infection and applications of silver nitrate, varying in strength from 10 per cent to 3 per cent or less, to the urethra and trigone does cure the enuresis, we can be pretty sure the ureters were not involved.

Symptoms.—As has been stated heretofore, one of the most frequent causes of abdominal pain is ureteral stricture, but stricture of the ureters will also produce pain referred elsewhere. If the patient is a woman, she will frequently complain of pain in the ovaries. A patient with ureteral stricture may have pain or aching anywhere from the waist to the knees, but the pain will usually center somewhere in the region of the bladder, ureters or kidneys.

Backache in the region of the kidneys, the lumbar spine or sacro-iliac joints is very common and sometimes the ache will be so high in the dorsal spine that one will suspect the trouble is in the gallbladder.

In the presence of these symptoms, even in the absence of bladder symptoms, one should be on the lookout for ureteral stricture. Cabot says 30 per cent of the cases have no bladder symptoms. When bladder symptoms are the result of focal infection, they are prone to appear suddenly and without any apparent reason. If a patient presents himself complaining of a sudden onset of "cystitis" and gives no history of gonorrhea, injury, operation or childbirth, one should immediately suspect infection of the ureters, trigone or urethra, secondary to focal infection. Genito-urinary tuberculosis will often present similar symptoms but there should be no difficulty in differentiating the two.

In women, the symptoms are often ascribed to ovarian or tubal disease. The lower portions of the

[3] Ibid., p. 314.

ureters are so intimately associated with the ovaries and tubes that a physiological function in one can and does cause, or rather increase, morbid signs in the other. The symptoms may be noticed only during and just before the menstrual period but as time goes on, they may be more or less constant. In fact the term "ureteral dysmenorrhea" has been coined to apply to those women who, though they have normal genital tracts, have not been relieved of dysmenorrhea by childbearing or cervical dilatation, and whose ureters are tender on palpation.

Many gastro-intestinal symptoms that have stubbornly refused to yield to treatment to the digestive tract, promptly disappear when the ureters are dilated.

If infection of the kidneys or ureters accompany the stricture, fever and chills are common; this is especially true if there occurs some condition which causes closure of the stricture, but it is also true that they can develop fever in a unilateral stricture even when there is no infection present. The fever, leukocytosis and increased amount of pus may be the result of absorption from a focus of infection which is the cause of the stricture in the first place.

What will urinalysis show in ureteral stricture? Cabot says in 75 per cent to 80 per cent of stricture cases the urine is negative or shows very slight changes. One would not even attempt to diagnose stricture from the urinary picture.

On making a physical examination of these patients we usually find tenderness on palpation of the kidney and ureter on the affected side, and if we look carefully, we will be pretty likely to find it on both sides; for it has been shown that stricture is oftenest bilateral and frequently on the symptomless side one will find the most damaged kidney, which is demonstrated by the phthalein renal function test.

Diagnosis.—I wish to repeat that ureteral stricture is one of the commonest causes of abdominal pain—and too often wrongly diagnosed.

Women come in complaining of "falling of the womb", dysmenorrhea and dyspareunia. A careless or hurried examination will lead one into the common error of diagnosing tenderness of the ovary or tube or even appendicitis.

In the broad ligament area there will be tenderness on palpation and sometimes all the symptoms referred to in the preceding paragraph will be imitated when pressure is made on the pelvic ureter.

When the appendix is actually involved the tenderness is practically always outside McBurney's point, while if the ureter is at fault the tenderness will be downward and toward the mid-line from that point.

A roentgenogram of the pelvis will frequently reveal calcified lymph glands or venous phleboliths. Without ureteral catheterization with radiopaque catheters, calcified lymph glands may be diagnosed ureteral stone and a useless operation may be performed.

I have in mind the case of an osteopathic physician in which this incorrect diagnosis was almost made. He complained of pain in the loin, of a spasmodic character, which at times was referred to the lumbar spine and was so persistent and resistent to treatment that arthritis was suspected. Roentgenograms were made and what appeared to be stones, two of them, in the ureter were revealed. I persuaded him to have the ureters catheterized and another roentgenogram made before going any further. He did so, and the "stones" were found to be calcified lymph glands located more than an inch from the ureter. These deposits probably were not the cause of the pain he felt, although they often follow the same inflammatory process which causes stricture. It was so found in this case, and dilatation of the ureters relieved his troubles.

Treatment.—The only treatment of any value is dilatation. This, of course, must be done by someone who has had special training, as it is not work for an amateur.

The dilatation is performed through the cystoscope or other suitable instrument by means of bulbous or tapered bougies and catheters. It usually has to be repeated several times and the reactions are sometimes quite severe but scarcely ever dangerous.

These reactions are caused by edema at the site of the stricture following the slight trauma necessarily caused by the stretching process. The edema causes a still further narrowing of the ureteral lumen for a short time and considerable contractile effort is exerted to force the urine through. The pain is readily relieved by heat. The use of a hot water bottle or lying in a tub of hot water with the free drinking of water is usually all that is necessary. If these simple measures do not suffice, I give amidopyrine in five grain doses or the following excellent prescription:

Pwd. Ext. Hyocyamus	0.15
Codein Phos.	0.30
Phenobarbital	0.30
Amidopyrine	3.00

M. et div. into capsules No. XV

Sig. One every two to four hours. If not relieved in one hour following first dose repeat in one hour but not more than three doses at hourly intervals.

This prescription will be found dependable for the relief of various types of pain, especially when the relaxation of smooth muscle is desired.

It is not my intention or desire to discuss the treatment of ureteral stricture in any detail, for it is of interest only to those specializing in such cases. My purpose is to bring the subject to mind, that we may recognize the condition and take cognizance of its prevalence.

Results.—I might preface these remarks by saying there is considerable difference between the thin-walled ureter and the male urethra. Strictures in the urethra are usually the result of severe trauma or an intense local infection with inflammation and the formation of dense bonds of fibrous tissue which are stubborn to treatment; and it is from this type of stricture that the saying comes: "Once a stricture always a stricture". But this saying is no longer true of the urethral type of stricture as I hope to point out in the section on that subject.

It is true that many cases of ureteral stricture require repeated dilatations sometimes extending over a period of two or three years, but as has been pointed out, with the removal of foci of infection throughout the body these strictures get well and stay well. Even though it requires considerable time and repeated dilatations with the eradication of infected teeth, tonsils, sinuses and what not, the restoration to health is highly gratifying to both patient and urologist.

The value and importance of skillful ureteral stricture work cannot be overemphasized; it has been the means of clarifying the diagnosis and relieving obscure abdominal and pelvic symptomatic pain that has puzzled the profession for years.

Many patients who have so-called surgical kidney will recover as a result of improved drainage following ureteral dilatation and it is surprising what the same operation will do in many cases of nephritis.

I know of no work that I have ever done in twenty-one years of practice that has brought me more satisfaction than this. To see the sufferer regain weight and cheerfulness, return to his work and be finally restored to health has been ample—and in some cases the only—compensation.

The following case reports are quite typical of the varying conditions one will find.

Case I.—Female aged 70 (considerably overweight), came for treatment complaining of digestive disturbances, attacks of vertigo and a dull pain in right iliac region which had been present more or less constantly for 30 years. General treatment, regulation of diet and elimination improved the digestion and relieved the vertigo but had no effect on the pain. The patient said she had had it so long she expected always to have it. From its nature and the occasional attacks of polyuria with no bladder or urethral symptoms and no abnormalities of the urine, I suspected ureteral stricture, and told her so. She was willing to try anything to be rid of the pain. I made a cystoscopic examination and a renal function test, which revealed no abnormalities. On the right side I could not pass the catheter above the midsection of the ureter. She was then removed to the x-ray room, a 13% solution of sodium iodide injected through catheter and the pyelogram revealed a stricture where the difficulty in passing the catheter was encountered. Three subsequent dilatations with graduated ureteral bougies removed the trouble and there has been no return in four years.

Case II.—Male, aged 62, merchant, had pain and aching in right loin just below the ribs. Pyelogram showed stricture and a right angle bend of ureter about three inches below renal pelvis. This kink or bend was very likely due to adhesions following the infection and inflammation that produced the stricture. I attempted to dilate cystoscopically but failed to pass the bend. I injected through a catheter butyn and ephedrine thinking the anesthetic would overcome any tendency for the muscular coat to contract and the ephedrine would shrink the mucosa thus enlarging the lumen. But it was impossible to make the turn with even the smallest bougie. Following my failure, the patient failed to return for another attempt. Had he returned, I would have placed him in an extreme Trendelenberg position and, with an assistant, would have pushed up on the kidney. It is barely possible this procedure might have straightened the ureter sufficiently to permit passage of the bougie. This case very likely would have required an open operation with retrograde dilatation when, at the same time, any adhesions could have been dissected loose. I lost sight of this patient, however, and am not informed as to his present state, but knowing that there is considerable dilatation of the renal pelvis and ureter above the stricture, I can safely predict an ever-increasing hydronephrosis with ultimate destruction of the kidney from pressure, and almost inevitable injection.

Case III.—Male, aged 45 years, a gasoline station operator. The patient's principal complaint was pain in the left kidney region. Cystoscopic examination revealed stricture of both ureters just above the ureteral orifices. The strictures were so small that it was difficult to pass a No. 4 catheter. A renal function test showed decided impairment in function of both kidneys: From the right kidney the phthalein appeared in 16½ minutes and from the left not until more than 30 minutes; the normal time is not more than five to six minutes. Repeated dilatations, six in fact, gradually increased the size of the stricture until a No. 10 bougie would pass easily and a second renal function test revealed practically normal functioning of both kidneys:

From right kidney, 4½ minutes.
From left kidney, 6 minutes.

There was marked relief from symptoms from the very first dilatation.

The most interesting feature of this case, aside from the improvement in function, was that here was a beautiful example of double ureteral stricture of systemic origin. This man had some badly infected dead teeth and an antrum full of pus. The teeth were extracted and the antrum drained, and his progress has been all that could be desired. Clinically he is a well man with many useful years ahead.

Each of the three foregoing cases presents a different problem in both diagnosis and treatment, but before leaving the interesting subject of case reports, I want to present one more that is unique in my experience. The only symptom was frequent urination—not a rare symptom in ureteral stricture but in this case the only one. I mentioned the case briefly in the beginning of these articles.

Case IV.—Male, aged 23, medical student, whose principal complaint was polyuria. This was so frequent that he had to leave college as he could not sit through a 45 minute class period without being compelled to leave the room once or oftener. This condition was rapidly getting worse and had become nocturnal as well as diurnal and was beginning to effect his health seriously through interference with his sleep. The urine was normal in every respect save for a low specific gravity and a very pale color. Total solids excreted in 24 hours were normal.

This young man had been examined in one of the world's greatest clinics, where the diagnosis of neurosis was made. Others called it diabetes insipidus but for some strange reason not one ever thought of exploring the urinary tract. I had previously noticed in several cases of urinary stricture this peculiar tendency toward polyuria, but none so bad as in this case. The possibility was suggested to him and his reply was, "Go ahead". A cystoscopic examination revealed a mild trigone irritation and strictures of both ureters just above the ureteral openings. The first dilatation relieved him and subsequent treatment brought about a complete cure. There was no return of symptoms in three years. He has since left the city and nearly five years have passed since he was treated and I have had no word from him, although I especially requested him to write me if there was a return.

This case was unique in that there was no demonstrable pathology save the strictured ureters and the only symptom a polyuria. No remote focus of infection could be found. There had been no injuries and no operations. As stricture almost always is the result of infection when not traumatic, then undoubtedly the condition arose following some acute infection. He gave a history of having had the usual childhood infections plus several attacks of tonsillitis prior to removal of the tonsils.

The majority of ureteral strictures can be overcome by dilatation by the vesical route, but occasionally one will not so yield, as in Case 2. Some cases will require opening of the abdomen and retrograde dilatation. Some very dense strictures close to the bladder cannot be dilated, in these conditions bladder implantation is necessary; in those strictures higher up, bowel implantation by the Coffey method is recommended.

A few milligrams of foreign protein injected under the skin of a person sensitized to that substance may cause death in a few minutes. The tortures of hay fever and certain types of asthma are produced by quantities of protein so minute as to be unweighable. If the pituitary gland, a mass not much larger than a pea, does not function properly, the individual may become a fat, impotent, useless creature, or a giant with malformed limbs and features. The absence of a small quantity of thyroid secretion makes a child an idiot. An excessive amount, probably of a perverted nature, may bring on a fatal thyrotoxicosis.—*A Text Book of Pathology. Delafield & Prudden.*

Vertebral Lesions and Gastric Motility*

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The relation of vertebral lesions to the tone of the gastric muscles has been studied at Sunny Slope for rabbits, guinea pigs, and cats. The place of atony of the gastric muscle in the etiology of indigestion is evident. Unless the food taken into the stomach is subjected to intimate contact with the gastric juice, digestion must be inefficient. If the gastric muscles do not empty the stomach completely, the remaining food stuffs undergo various fermentative and degenerative processes.

Strength, extensibility, and elasticity are maintained in the gastric muscles only so long as normal blood flows at normal pressure through the blood vessels, and their nerves carry the impulses which adapt the gastric activity to the condition of the food and of the individual.

The gastric muscles, like all other nonstriated muscles of the body, and like the heart, have certain independent physiological qualities, even though innervation and circulation are impeded. The gastric muscle is able to contract and relax in a manner which resembles that normal to the particular stomach being examined. Like these other structures also, the gastric muscle does not have the power of reacting to usual environmental variations if it is severed from its proper nerve supply. In order that any muscle may adapt its functions to the changing requirements enforced by varying environmental conditions, it must maintain unimpeded and unmodified pathways for nervous impulses to and from the gastric centers in the spinal centers, and to and from these to the nerve centers controlling other parts of the body.

In the study of these relations a series of experiments was performed in the Sunny Slope laboratories. More than a hundred rabbits and nearly a hundred guinea pigs were selected for a group of experiments devoted to the study of these relations. Twenty-eight rabbits, young, adult males, were selected for the first test. Each of these was examined by two of us, independently. Twenty others were selected for controls. Twenty-eight received a lesion of the seventh thoracic vertebra. The lesion was produced by about three hundred gentle manipulations. The vertebræ were counted to determine the spinous process of the selected vertebra, and pressure was exerted upon the left side and the lower surface of the transverse process of the same vertebra. This pressure was gentle in degree and was relaxed after about two seconds. The pressure was again applied for about two seconds and the relaxation permitted for about two seconds. Some pressure was maintained during the intervals of relaxation. In other words, the degree of pressure was increased, held; increased, held; increased, held; increased, held, at intervals of about four seconds. The amount of rotation thus secured was not lost during the intervals. About three hundred such manipulations were necessary to produce the lesion. Spontaneous correction of lesions so produced, occurred very rarely. The manipulations were repeated for each rabbit until the fingers producing the pressure perceived a yielding in the rabbit tissues. This yielding appeared suddenly and was associated with a perceptible change in the position of the bones being acted upon. When this sudden relaxation occurred the lesion was easily palpable and, except in very exceptional cases, was permanent for the life-time of the animal or until corrected by osteopathic manipulation.

In this group the rabbits were kept under observation but were not palpated until a day or two before their death. During the first week no particular change in the behavior of the animals was visible. During the second week it was noticed that the lesioned animals ate and drank more abundantly than did the controls which were not lesioned. During the successive weeks the lesioned animals ate more and more voraciously and they became increasingly untidy in their habits. Attacks of diarrhea occurred once or thrice a week in the lesioned animals but not at all in the controls. The animals were thus watched for one to seven months. At the end of that time each rabbit was fasted for twenty-four hours and was allowed no water for one hour. Each was killed by a blow upon the back of the head. This blow caused a moderate amount of cerebral hemorrhage but not any visible bleeding at the nose. A few spasmodic contractions occurred with the cessation of breathing in each case. The stomach was then removed. The bolus was subjected to pressure in order that the gastric juice could be secured and the wall of the stomach examined.

In each one of this group of rabbits the gastric wall was atonic, the stomach was dilated, the bolus contained an excessive amount of gas and the gastric juice showed subnormal acidity. The gas mingled with the substances forming the bolus was found to be carbon dioxide, on passing it through lime water.

In another group of animals, including rabbits, cats, and dogs, the immediate effects of a seventh thoracic lesion were studied. This lesion caused, at first and for an almost evanescent period of time, a pallor of the walls of the stomach due to abnormal contraction of the blood vessels. This was followed almost immediately by a reddening of the tissues and relaxation of the vascular muscles.

Microscopic sections made of the tissues at this time showed the vessels tensely filled with blood cells. The normal plasma layer which separates the endothelium from the central core of blood cells was absent. The tissues affected by the lesion, in which the blood cells are in direct contact with the endothelium of the capillaries and other vessels, showed beginning diapedesis during the first twenty-four hours after lesioning. The minute hemorrhages so produced seemed to be terminated by the coagulation of the blood plasma when it came in contact with the perivascular tissues. These hemorrhages continued to appear at intervals which can not be measured by our present methods of study.

Sections taken through the gastric wall a few weeks after the seventh thoracic lesion had been

*Read before the Gastro-Intestinal Section, A.O.A. Convention, Detroit, 1932.

produced showed many of these minute hemorrhagic areas. Some of these showed the brilliant red color and the well-formed blood cells which indicated that the hemorrhages had only just occurred. Other clots in the same section showed coagulation of the plasma, a venous tint of the red cells and beginning degeneration of the erythrocytes. Still other hemorrhagic areas showed beginning digestion of the cells and the clot, and beginning absorption or organization. Why it is that some of these clots become organized while others become completely absorbed presents one of the problems which must be solved by later study. In those clots which are becoming organized there is round cell infiltration and early development of connective tissue cells and fibers.

The animals selected for the immediate study of the effects of bony lesions were fasted for twenty-four hours and were given no water for one hour before the experiment was begun. Either chloroform or ether was given until the animal became completely relaxed. The abdomen was then opened and the stomach exposed to view. The color and the peristalsis of the stomach and of the intestines was observed for a time, from one minute to five minutes, in order that the normal appearance might easily be recognized.

The seventh thoracic vertebra was then located and pressure was applied upon the spinous process or upon the transverse process in such a manner as to produce, temporarily, a vertebral lesion. Congestion appeared after an evanescent paling. Peristalsis became slower and finally ceased. The walls of the stomach relaxed and the stomach became dilated. Considerable amounts of gas appeared within the stomach.

In order to determine whether this gas appeared only within the stomach or whether it might be set free within the peritoneal space, this experiment was repeated in the same manner except that the animal was placed in a large pan of water kept at normal body temperature. This water was made isotonic with the blood plasma by the addition of salts which were mingled as nearly as possible in the proportions found in the blood plasma. The abdomen was opened under this fluid. The head of the animal was kept above the surface of the water in order that respiration might be unimpeded. The seventh thoracic vertebra was located and subjected to pressure in the same manner as before. The evanescent paling of the tissues was barely visible. Redding occurred within one-half minute after the lesion was produced.

About five minutes after the lesion had been produced, the surface of the mesentery become dulled, as if a very thin veil had appeared. Within the next few minutes, fine droplets were visible, and these coalesced, forming drops of air which finally became large enough to float to the surface. This process continued during the life of the animal, about twenty minutes after the lesion had been produced.

The possibility that gas within the peritoneal cavity may be one cause of abdominal discomfort is evident. The absurdity of the treatment of such discomfort by the administration of purgative drugs is also evident.

In several experiments, the temporary lesion was relieved after the evolution of gas had become visible. The blood vessels returned to their normal size and the development of the gas bubbles ceased. In this case there was no absorption of the gas which already had been set free in the surrounding fluid, since this was not subjected to any pressure worth mentioning, in the fluid. In human subjects with the same lesions, the absorption of gas from the peritoneal cavity seems to occur, from the symptoms observed.

These circulatory changes were noted not only upon the stomach but also upon the colon and the lower part of the smaller intestine. The blood flowing within these vessels showed a slower current and lower pressure than is normal. The carbon dioxide being carried by the blood is held in solution only as long as the blood is under normal pressure. With the diminished blood pressure due to vasodilatation, carbon dioxide is set free into the intestinal tract and into the peritoneal space.

The effects of upper thoracic lesions upon the gastric muscles were studied in eight guinea pigs. The second thoracic lesion was produced in young, healthy, adult male guinea pigs by means of about two hundred gentle manipulations. These manipulations consisted of a series of pressures upon the transverse process and the spinous process of the second thoracic vertebra. The pressure was exerted at intervals of about twenty a minute. After about two hundred such manipulations, a sudden relaxation of the tissues was perceived. The vertebra seemed to move suddenly. The actual disturbance in bony relations was very slight. At the instant of relaxation the heart became rapid and feeble. The respirations became shallow, weak, and rapid, and the blood pressure was suddenly diminished. The pig became unconscious and the condition resembled that of shock. These symptoms passed away within a short time, a few minutes to about half an hour. The flexibility of this part of the spinal column was increased. The tissues were very soft and flabby. About twenty-four hours later it was possible to palpate some edema of the deep spinal muscles of the lesioned area. After the second day the edema increased and rigidity appeared. This also increased for some weeks. The changes in the tissues of the eyes and the throat which usually appear after this lesion were present in this group of animals. Digestive symptoms were not noticeable.

These pigs were killed at different times after the lesion was produced. They were fasted for twenty-four hours before they were killed and no water was given them for one hour before death. In each of these pigs the stomach showed no ulcers, no atony, and no dilatation. The gastric acidity was diminished. The average of free hydrochloric acid was slightly below one-tenth of one per cent. The normal hydrochloric acid in pigs of this age is somewhat above one and seven-tenths per cent.

Eight other guinea pigs, not lesioned, of the same age and the same normal inheritance, were examined and killed in the same manner. These normal guinea pigs also failed to show any ulcers, atony, or dilatation of the stomach.

Two guinea pigs of the same litter, born of

normal parents, were selected for special study. These pigs lived in the same pens and had exactly the same food, water, and other care during their lifetime. The lesion of the second thoracic vertebra was accidentally produced. It was not present at an examination made two weeks before the pigs were killed. Each pig was killed by a sharp blow upon the back of the head. They had had no food for twenty-four hours and no water for two hours before the lethal blow. The stomachs were removed immediately. In both cases the gastric contents weighed thirty-five grams. The normal pig showed a total acidity equivalent to 0.125 per cent. The pig with the second thoracic lesion showed a total acidity equivalent to 0.085 per cent.

The effect produced upon gastric motility by a lesion of the seventh thoracic vertebra was studied in thirteen guinea pigs. This lesion was produced by about two hundred gentle manipulations such as have been described. The symptoms of shock did not appear. After lesioning, the pigs seemed a little weak and they walked rather unsteadily for a few minutes. About two days after the lesioning the pigs began to eat and drink more ravenously than did the controls, yet they were poorly nourished. During the following weeks the lesioned pigs grew thinner and less active; the controls remained plump and active. The fur of the lesioned pigs became rough. They became untidy, irritable and easily frightened. They had diarrhea whenever any slight change in environment, food or weather occurred. None of these symptoms was shown by the controls. These pigs were allowed to live from two to three months before they were killed. They were fasted for two days and were given no water for one hour before they were killed.

Each pig was killed by a sharp blow upon the back of the head. The stomach was removed and examined immediately. In each case gastric atony was present. A considerable amount of gas was mixed with the bolus and this was found to be carbon dioxide. In each case acidity of the gastric juice was diminished to about one-half the normal. The gastric contents weighed from forty-four to forty-seven grams. The normal stomach of the nonlesioned pig of this age contains from twenty to twenty-five grams.

Another group of guinea pigs was given a dorsolumbar lesion by means of gentle manipulations repeated about two hundred times, or until the tissues yielded in the manner already described. The pigs showed some weakness of the hind quarters immediately after lesioning. This condition disappeared within an hour or so and no further symptoms due to the lesion were present. These pigs were not mated. They all were young, healthy, adult males born of normal parents.

Four of these were killed six months later. In each case the stomach was considerably dilated and contained a thin, watery substance mixed with considerable amounts of carbon dioxide. The total acidity varied from 0.13 per cent to 0.15 per cent.

It has been said in each of these cases that the pigs used for experiment were born of normal parents. The progeny of lesioned parents show a moderate atony or a weakness of the gastric walls but they do not show definite dilatation of the stomach. The progeny of lesioned parents, however, always show subnormal acidity and occasionally they show no hydrochloric acid at all in the gastric secretion. For this reason experiments were always performed upon the progeny of normal parents.

A similar group of experiments was performed for kittens and cats. In these animals the stomach was found dilated when there was a lesion of the seventh thoracic or neighboring vertebræ.

In another group of guinea pigs the effects produced by lesions of the fifth thoracic vertebra were studied. The fifth thoracic vertebra was lesioned by about two hundred gentle manipulations as previously described. They were killed at intervals for one year. No gastric atony was present in these animals. Erosion or ulceration and hyperchlorhydria were present in all these cases.

These relations were studied in several other groups of rabbits. Two rabbits, somewhat more than three years old, sisters, had been used for breeding purposes. They were both examined before they should be mated again and one was found to have an accidental lesion of the fifth thoracic vertebra. The sixth and fourth thoracic vertebræ were affected secondarily. The tissues around these lesions showed the changes usually associated with vertebral lesions, on both antemortem and postmortem examinations. The sister showed no lesions and was in excellent health. Both these rabbits were given no food for twenty-four hours and no water for one hour. Each was killed by a sharp blow upon the back of the head. The stomach was removed, examined, slit along the greater curvature and emptied. The nonlesioned rabbit showed a normal stomach and normal gastric juice. The lesioned rabbit showed a stomach somewhat congested in several areas. A marked area of congestion appeared upon the serous surface at the junction of the cardiac and intermediate areas, near the lower anterior part of the stomach. When the stomach was slit and the bolus removed, this was found quite soft and adherent to the mucosa by a layer of highly viscid mucus. Upon the mucosa, just opposite the area of marked congestion upon the outer surface, there was found a group of nine small ulcers. None of these quite perforated the mucosa.

The gastric juice from the normal rabbit showed a total acidity of 0.38 per cent, free hydrochloric acid, 0.29 per cent. No blood, frank or occult, could be found. The gastric juice of the lesioned rabbit showed a total acidity of 0.64 per cent and free hydrochloric acid of 0.45 per cent. A strong trace of occult blood was present.

The stomach and gastric juice were examined for twenty young, normal, adult rabbits. In this group there was no recognizable difference due to sex, in the stomach or in the gastric juice. No abnormal conditions were found in the mucosa or the gastric muscle of these rabbits. The average acidity for the group was as follows: total acidity, 0.37 per cent; free hydrochloric acid, 0.31 per cent.

Thirty rabbits with accidental or experimental lesions of the fourth or fifth thoracic vertebræ, or both, and with no other lesion were killed ten

months after the lesion had been produced or had first been found. The average total acidity was 0.48 per cent, free hydrochloric acid, 0.44 per cent. Of these rabbits, all showed either ulceration or some definite area of marked congestion of the mucosa in which a moderate degree of erosion was recognizable. Not one of these rabbits showed gastric atony or dilatation.

Thirty rabbits had lesions of the seventh or eighth thoracic vertebræ, or both, and no other lesions. These were killed ten months after the recognition of an accidental lesion or after the experimental lesion had been produced. There was no evidence of hyperchlorhydria, gastric ulceration or localized congestion in any one of these rabbits. Gastric dilatation, atony and the presence of considerable amounts of gas with the bolus was found in every case. The hydrochloric acid in this group of rabbits gave an average of 0.245 per cent with a free hydrochloric acid of 0.18 per cent.

In ten cases the vertebral lesions were noted and gastric analysis made for human subjects. In these cases no other cause for the gastric disorder was known than the bony lesion. It is, of course, not possible in the case of human beings to make an absolute statement as to the absence of other etiological factors. In these cases, lesions of the fourth and fifth thoracic vertebræ were associated with gastric ulceration and hyperchlorhydria. Lesions of the seventh and neighboring thoracic vertebræ were associated with hypo-acidity, gastric atony, dilatation and some gastroptosis.

In a series of experiments performed by Earl and Avis Hoskins, in Chicago, the passage of food material through the gastro-intestinal tract was found to be considerably delayed by lower thoracic or upper lumbar lesions.

The relation of bony lesions to the emptying time of the stomach, in human subjects, is now being studied by J. S. White in Pasadena. This work has not yet been carried on to an extent which warrants any report.

Much further study must be done before the relation of bony lesions to gastric motility can be completely discussed. Such work as has been done, however, leads to the conclusion that lesions of the seventh and neighboring thoracic vertebræ are important factors in the etiology of gastric atony, dilatation, and gastroptosis.

Cardiac Emergencies: Their Manifestations and Treatment*

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In this paper we will consider a cardiac emergency as being an abnormality in the function of the heart which overshadows all other phases of a patient's illness. In other words, we will discuss those cardiac manifestations which necessitate the application of therapy to the heart itself, rather than to the disease which is causing the dysfunction of that organ. It is well to remember that all heart disease is secondary, and in the ordinary course of events, our treatment is primarily applied to the causative disease. Among the circulatory emergencies, myocardial failure is most frequently encountered.

THE ACUTE HEART

Acute heart involvement occurs in acute infections, and causes the death of practically all those who die of these diseases. The best procedure in this variety of cardiac emergency begins, of course, with early recognition by means of careful routine and daily study of the heart of the acutely sick patient. In THE JOURNAL for January, 1929, I wrote that the key to the prognosis in pneumonia is the condition of the heart. We can believe that this may be true of most of the infectious and contagious diseases.

It is too late to diagnose failure of the heart when the patient is orthopneic, cyanotic, edematous, semiconscious, and expectorating a pink or bloody froth. This is not a cardiac emergency; it is a cardiac calamity.

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DIAGNOSIS OF THE ACUTE HEART

In the daily study of the heart of the acutely sick patient we study the temperature, pulse and respiratory rate. A rise in the temperature of more than a degree, unaccounted for by the acute disease itself, may easily be an early manifestation of acute carditis. If the pulse rate is out of proportion to the temperature, it is well to suspect cardiac embarrassment as the cause. This is true not only of the too rapid pulse, but also of the one which is too slow. Initiating a cardiac involvement, there may be an increase in the respiratory rate, corresponding to the failure of the pulmonary circulation.

Frequently in the myocardial failure of an acute disease, there are no positive stethoscopic findings, and we must depend upon other objective signs for its recognition. Change in the location of the apex beat, especially downward and to the left, upon daily examination is an important observation. Bulging of the precordium and an increasing area of cardiac dullness, more often on the left, are also found in this circumstance. One or all of these signs, with imbalance of the T. P. R., might point out a cardiac emergency, even in the absence of adventitious sounds over the body of the heart.

TREATMENT OF THE ACUTE HEART

Fortunately, in this cardiac emergency, we have, in osteopathic manipulation, a treatment par excellence. It is a therapy with which it is possible to accomplish a cure. If it is possible for us to cure acute

bronchitis, or acute rhinitis, by manipulation of the spinal structures, it is reasonable to infer that the same type of treatment will cure acute carditis. Clinically, this proves to be true.

In the osteopathic manipulation we try to avoid vigorous maneuvers as much as possible. Muscular and ligamentous relaxation, and the correction of bony subluxations by stretching rather than exaggeration, is applied to the areas of lesion. Daily or twice daily treatment is usually sufficient, but in the more acute cases, and the graver emergencies, it is sometimes necessary to decrease the duration and increase the number of such applications.

In addition to this curative therapy, such adjunctive treatment as heat or cold to the precordium may be used. In all cases, though, these thermal measures must be used cautiously, and the patient should be professionally attended, by a physician or nurse, throughout the duration of their administration. A ten to twenty minute application every two or three hours is usually ordered.

Needless to say the patient should remain undisturbed and in bed, not only until the subsidence of the fever, but also until several days after the physician is certain that the emergency has been passed. The diet and elimination should be watched in all cases.

Unless these cardiac complications are recognized and treated early, the patient is quite apt to develop a chronic circulatory disturbance at a later date. While these cases are not spectacular, per se, it is through their proper care that we will help to prevent cardiac calamities later in life.

DANGER OF CHRONICITY FOLLOWING ACUTE HEART DISEASE

Should a case of acute carditis pass unrecognized and proceed through its developmental stages untreated, organic changes inevitably take place in the endocardium, myocardium, pericardium or aorta. Many cardiac invalids and a large percentage of cardiac deaths in middle life, are caused by carelessness on the part of the physician who attended those cases in early life. We can think of no more important cardiac emergency than that developed by the acute case.

It is important to understand the pathogenesis of chronic involvements of the heart from these overlooked acute lesions. Chronic valvular defects, with their ultimate cardiac decompensations, myocardial degenerations, with the frequent failures, pericardial adhesions and effusions and aortic disease, and even angina pectoris, are continuing links in the chain of incurable cardiac circumstances. It is possible, with any of these developmental pathologies, to live for a number of years, with restricted activity, and proper hygiene.

There is a developmental pathology, however, which is almost incompatible with life. It is an almost hopeless cardiac emergency. It has many names but we prefer the term, subacute bacterial endocarditis. This disease is characterized by the re-infection of a previously pathological endocardium, usually by a coccus, most frequently the streptococcus. Structurally, infective verrucosities or vegetations are formed on the valve flaps, to be whipped off, and into the general circulation, to lodge, as infective emboli, in some organ, such as the lung, brain, liver, or kidneys. The resultant infraction, of itself, would not prove to be serious in all cases, if it were not for the septicemia accompanying this disease.

SUBACUTE BACTERIAL ENDOCARDITIS USUALLY FATAL WITHIN TWO YEARS

Medical authorities claim that it is impossible for any person suffering with subacute bacterial endocarditis to live for more than two years. However S. Calvin Smith, M.D., cardiologist of Philadelphia, reports a case of a patient who succumbed only after eleven years of invalidism. In my experience only one patient has lived beyond the allotted two years, a woman with a confirmed diagnosis and a positive blood culture, in December, 1924. After a very miserable and uncomfortable existence for six years, under continuous and repeated osteopathic treatment, she is today leading a relatively normal life.

DIAGNOSIS OF SUBACUTE BACTERIAL ENDOCARDITIS

The diagnosis of the condition is made by observation of the clinical manifestations and the use of laboratory procedure. Characteristic of the disease is fever, septic in type and varying from 100 to 107 F., accompanied by a markedly increased pulse rate and dyspnea.

Symptomatically, the patient is collapsed, loses weight rapidly, becomes greatly dyspneic and suffers from joint involvements. So marked is the dyspnea that at times it is necessary to elevate the head of the bed to a perpendicular position, and even administer oxygen, to prevent strangulation. The joint involvement is usually quite widespread and is accompanied by rigidity as well as pain; in many instances it is impossible for the patient to move. Added to these symptoms are those of embolus and septicemia.

Objectively, the patient's skin usually assumes a characteristic bronze tint, or a color similar to that of coffee to which cream has been added. The ensiform cartilage and the surrounding tissues are exquisitely sensitive to pressure. So, too, are the various joints, including the vertebral articulations. Usually on the extremities or the abdomen, a rash caused by showers of petechiæ is visible. This is the result of the retention of small emboli in the most peripheral blood vessels of the skin.

The pulse differs in rhythm, volume and intensity in different cases, but it is always abnormal. So, too, is the heart, but mitral disease is a usual finding.

The blood pressure is most often low, the blood anemic and the white cell count moderately increased, with a predominance of neutrophiles. The laboratory blood culture may be negative. It is well, in a suspected case, to have the blood cultured every five days, and to have the culture kept for at least twelve days. Injection of a guinea pig, followed by an autopsy in about six weeks, is advisable.

EXACERBATIONS AND REMISSIONS

Pathognomonic of this dread disease, however, is the occurrence of exacerbations and remissions. A patient with subacute bacterial endocarditis may be at the point of death for three or four days or a week, and apparently recuperate quite quickly. Unfortunately the somewhat longer periods of remission often give rise to a false sense of security and a too favorable prognosis. Inevitably each of these spells of subsidence, is followed by more severe and longer periods of exacerbation. The exacerbations and remissions take place in both the symptoms and the physical

signs. Ultimately the heart fails and the patient dies.

This disease is never cured and seldom much improved by any method of treatment. When the diagnosis is assured, our treatment is directed to the blood stream, and to the support of the heart. To delay or to experiment with subacute bacterial endocarditis is folly.

According to good medical practice, antiseptics, such as mercurochrome, and Pragl's iodine, are injected into the blood stream regularly. A polyvalent serum, too, might be administered intravenously. If the blood culture is positive an autogenous vaccine can be used. Concerning the dosage of these substances, it is our opinion that it should be the maximum. It is only by the use of heroic measures that the very slight possibility of life may be given these patients.

For support of the heart, especially during the exacerbations, gentle and short osteopathic manipulation every hour or two is indicated, and quite effective. Digitalis purpurea leaf derivatives, even if used intravenously, do not seem to benefit the heart. Theocalcin and caffeine, if used in large doses, with a sedative such as luminal, allonal, or veronal seem temporarily to support the heart. Metaphyllin or euphyllin in tenth gram doses, t. i. d., might improve the heart action, and also help to eliminate solid matter through the kidneys. Oxygen should be used early and often.

Along with this program, an interesting and appetizing diet is ordered, with no misgivings about over-indulgence for the appetite is practically nil. Elimination is encouraged, preferably by laxatives. The physical exertion required in using enemata might further embarrass the heart. The meteorism present can be controlled by hot stupes to the abdomen, or by the use of obstetrical pituitrin or eserine, and the rectal tube.

Nursing care is indispensable, not only from the standpoint of the patient's comfort, but also in the diagnosis of his condition, as complete records and careful observation are often necessary for its determination.

MYOCARDIAL FAILURE IN CHRONIC HEART DISEASE

Chronic disease of the heart, whether it be endocardial, myocardial, pericardial or a combination of several of these, gives rise eventually to a failing heart muscle. Such disease is the background of the myocardial emergency.

SYMPTOMS OF MYOCARDIAL FAILURE

The failing heart is characterized by dyspnea, orthopnea or true Cheyne-Stokes respiration. Distress in the chest and abdomen, along with vertigo, are not uncommon. Fainting spells may occur with a fair degree of regularity. Pain is not usually experienced, unless there is an involvement of the aorta or the coronary system. Digestive disturbances are not infrequently found in myocardial failure, due to the damming back of the portal circulation, as a result of incompetency of the right ventricle. Cough is an irritating symptom which is often present, due to the failure of the pulmonary circulation; the sputum may be bloody and mucilaginous, but it is more frequently frothy.

Edema of the extremities, face and neck, along with ascites in the peritoneum, and hydrothorax, is characteristically found. Cyanosis, too, is constant but the facies may be flushed or pallid, usually the latter. An anxious expression, due probably to the fear of impending death, is often observed.

The pulse is usually markedly increased in rate, and decidedly decreased in volume, though it may be decreased in rate and show the characteristics of heart block. Irregularities of the pulse are by no means uncommon, and when present they are variable in different cases. The apex beat is always displaced to the left and downward, and its character changes. Its diameter becomes very large, and on palpation, it is weak, and wavy. Potain's sign and abnormal pulsations above the sternum and clavicles are common. If the individual is thin, a noticeable bulge is seen in the precordium. Thrills are frequently elicited and may be found in different locations.

The area of cardiac dullness is increased in all directions, corresponding to the general enlargement of the heart. The liver may be engorged and encroach upon the upper right quadrant of the abdomen. There may be a dull area, with rales in the bases and in the hilar regions of the lungs. The kidneys are frequently increased in size and sensitive to pressure.

Stethoscopic examination may reveal murmurs at several of the valve areas, both systolic and diastolic in time. If present in the failing heart, the murmurs are usually soft, and difficult to elicit. The second sound of the heart is always shortened and snappy, in all locations. Likewise the systolic sound, lacking the tone of the muscular element of ventricular contraction, becomes short and valvular in character.

In the terminal stage the pulse quite frequently becomes a series of taps, and slow in rate, exemplifying the Stokes-Adams syndrome. At this time the second sound is not audible, murmurs are absent, and the only sound elicited is the single "click" of the closing valves.

Albuminuria, casts and sometimes blood cells are found in the urine. The patient may become anemic, and his blood pressure reduced.

Radiographic study is usually not necessary to confirm the diagnosis.

MYOCARDIAL FAILURE—A CARDIAC EMERGENCY OR A CARDIAC CALAMITY

In myocardial decompensation, it is always a question whether we are dealing with a cardiac emergency or a cardiac calamity. There are many degrees of failure, some of which may be quite successfully treated osteopathically. The failing myocardium, however, is never cured, nor is the pathology which has caused the decompensation.

THE PHILOSOPHY OF OSTEOPATHIC TREATMENT IN THE MYOCARDIAL EMERGENCY

In initiating the discussion of the treatment, let me state that I know of no therapy which is superior to osteopathic manipulation for maintaining and improving the tonicity of the myocardium. Heart muscle is subject to the same physiological laws as skeletal muscle. If spinal manipulation will improve the tonicity of the muscles on the outside of the body, which is granted, it requires no stretch of the imagination to believe that it will do likewise in the more important cardiac muscle. Hence, if the problem of the failing myocardium is one of lack of tonicity, and it frequently is, the only therapy necessary, and the only therapy indicated, is osteopathic manipulation.

OSTEOPATHIC TREATMENT OF HEART FAILURE

The manipulative treatment is applied as described earlier in this paper. It should be positive and specific, and yet gentle; the patient should not be moved unnecessarily. The treatment of choice is the short, frequent type, specifically applied to the lesioned structures of the cervical and upper thoracic regions.

The patient should maintain complete physical and mental rest. When improvement takes place, mild resistive exercises, such as the Schott system can be inaugurated. The individual's return to activity should be very gradual, and carefully checked by his physician at each stage of the journey. To hasten in the resumption of activity is dangerous, and often fatal.

Fluids are restricted, and condiments or other stimulatory foods and drinks are prohibited. Otherwise the diet depends entirely upon the causative factor. Elimination through the portals of exit should be normalized.

MEDICINAL SUPPORT OF THE HEART

Should support of the heart, medicinally, be desired, either because of a hopeless situation, or for maintenance of function, temporarily, digitalis leaf derivatives may be used. Our preference is intravenous therapy, using a fairly heavy dosage for quick digitalization. Oral administration is more often accompanied by gastro-intestinal upsets, and is a bit less accurately calculated. Infusions are of value only in young children, and, too, are difficult to prescribe and administer, satisfactorily. Maintenance dosage of the digitalis products varies with the size, weight and idiosyncrasies of the individual.

Strophanthus or ouabain may be used in the myocardial emergency. They are, however, used with the full knowledge that either may cause sudden death. We have seen one patient die as a result of the administration of strophanthus. The product cannot be standardized, and therein lies the danger in its use.

Theobromin may aid in the dehydration of the tissues when the edema is annoying. It is usually administered in capsules, and not used for more than several days at a time.

For cardiorespiratory embarrassment, theocalcin frequently offers temporary relief. The same is true of metaphyllin, euphyllin, caffeine, and other commonly used cardiac drugs.

The opiates, in very minute doses, quite often afford relief for the patient with a failing heart muscle. Sedatives and hypnotics are resorted to not only for the comfort of the patient, but also for their retardation of the rate and intensity of ventricular contractions. All such drugs should be avoided in secondary pulmonary congestions, as they paralyze the nerve endings in the bronchial tree, and hence lock up the products of stasis in the lungs. This may easily cause the patient to drown in his own secretions.

Oxygen administrations are used successfully in some cases. There is no contraindication for the use of oxygen, early in the disease. A few minutes each hour usually suffices.

Camphor in oil, metrazol and coffee enemata are also used, but usually only after all other means of relief have been exhausted. The results are very doubtful.

IS THERE UNIFORMITY IN DRUG THERAPY?

When we study the order sheets of various medical cardiologists, we wonder to what end their therapy is directed. With the exception of the use of the digitalis purpurea leaf derivatives, we rarely find any two of these pharmacological experts who employ the same program of drug administration.

Some medical observers laud the virtues of various serums and myocardial extracts in the treatment of the myocardium; others condemn them. In our hands, in an admittedly few cases, they have proven of no value in the myocardial emergency.

OSTEOPATHY—THE TREATMENT OF CHOICE

Fundamental osteopathic therapy is still the treatment of choice in the cardiac emergency. For the cardiac calamity, or the case which is hopeless or nearly so, everything known to science should be used, even though the percentage of successes is very low.

Time does not permit of a discussion of other circulatory emergencies, not truly cardiac, such as cerebral apoplexy, ruptured aneurism, angina pectoris and coronary disease. We do, however, believe that effort syndrome should be briefly discussed in this paper.

EFFORT SYNDROME—NEUROCIRCULATORY ASTHENIA

Particularly since the war, this syndrome has assumed an importance not previously accorded it. So many soldiers, upon the eve of battle, or during a skirmish, suffered from cardiac collapse, that the interest of investigators was aroused, and a new name applied, "Soldier's heart".

This syndrome is characterized by any or all of the symptoms of heart failure. Some few instances of death as a result of neurocirculatory asthenia have been recorded.

In all cases there is a history of instability of the nervous system, particularly the sympathetic portion thereof. Sajous claims that this effort syndrome, or irritable heart, is due to a decreased activity of the adrenal glands. It is certainly true that a considerable portion of these cases have a low blood pressure and other signs of hypoadrenia, hence we cannot deny the contention of that great endocrinologist.

Worry, fear, excitement and the various other human emotions frequently form the background for effort syndrome.

SYMPTOMS OF EFFORT SYNDROME

Symptoms of the condition are quite variable. In mild cases, palpitation and excessive perspiration comprise the subjective evidences. More severe cases cause dyspnea, cyanosis, oppression of the chest, sweating and "circus rhythm" in the heart. In the most severe instances, the patient may lose consciousness, and have marked cardiac embarrassment.

TREATMENT OF EFFORT SYNDROME

The treatment is directed between attacks to any foci of infection, to the endocrine system, and to the nervous system. Proper diet, elimination and general hygiene, too, are carefully advised.

During the attacks, the patient is put to bed and a sedative is administered. The attack may subside in an hour, or it may last for several days.

In any event, cardiovascular pathology must be ruled out before a diagnosis of effort syndrome is made.

SUMMARY

With the exception of effort syndrome, all of the important cardiac emergencies arise from the effect of heart pathology upon the myocardium.

The differential diagnosis is important, even though the therapy is practically the same in all circumstances. Subacute bacterial endocarditis, however requires the prompt administration of heroic treatment.

Osteopathic manipulation, logically and scientifically applied, is of the greatest importance in the treatment of cardiac emergencies. When the condition is hopeless, and every possible means of assistance is sought, cardiac drugs may be used. Medical support of the failing heart until the manipulations have normalized the spinal structures may well be applied. Cardiac drugs are not curative, and most often do not obtain the results with which they are credited.

Where Our Students Come From

ASA WILLARD, D.O.

Missoula, Montana

This student tabulation for 1933, as did those presented for the preceding six years, lists only those students in the colleges after the fall matriculations who are taking the regular four years' professional course. No pre-osteopathic, special or postgraduate students are listed. Our numerical progress would not be indicated by these latter and by listing each year from each college only the regular four years' professional course students, a standard basis of computation is had.

The sum total of regular professional course students listed for the fall term in each college in each of the past seven years is as follows: 1927—1642; 1928—1622; 1929—1646; 1930—1705; 1931—1750; 1932—1711; 1933—1726.

That our student total holds up through these stressful days is splendid. However, it must be recognized that all professional schools except the pedagogical are well filled. The explanation generally given in educational circles is that while many youths are deprived through lack of funds or earning possibility from attending college, enough others, because there is nothing else for them to do, are sent to college when under other conditions they would not be.

It has been my observation that, as a general rule, the student who has to economize rigidly and make sacrifices to get the osteopathic education which he seeks, makes the best physician and the most consecrated, dependable and loyal member of the osteopathic profession when he gets into the field. If the added pinch of present unusual conditions is enough to brush many of this type out of the picture it is indeed unfortunate, and I believe that is what is happening to no small extent, for I myself know eight or ten fine young men and one young woman who for years have been thinking of osteopathy as a career, but who are now deprived of taking it up. Ordinarily they could.

The study of these student records by states has proved interesting to the writer, and letters from some states where an effort has been made to arouse the profession to secure desirable prospective students indicates that the records have been helpful.

Rivalry in a good cause is a good thing. Sometimes it helps by shaming to more activity—sometimes by urging the maintenance of, or the exceeding of, an already splendid state record. Each reader should study his own state's figures to see where it stands, not alone as to total numbers, but also as to students sent in proportion to population. Of course when Iowa with 2,470,939 persons sends 107 students she is really doing more than five times as well as New York, which sends 108 and yet has 12,588,066 inhabitants. Iowa is sending a student for every 23,000, while New York is sending only one for every 116,000 (round numbers). There are 120,000,000 persons in the United States. Dividing this by 23,000 gives over 5,200, the number of students who would be in our colleges if all of the states did as well in proportion to population as Iowa does.

Take your pencil in hand and figure where we would be if we all did as well as your state.

The best record made by any state in proportion to population during the past seven years (and possibly for all time) was made by Montana when a few years ago she had 38 students in the colleges, from her little more than one half million inhabitants. If this ratio held for the country as a whole, it would mean over 8,500 students in our colleges.

This year Missouri heads the procession with the largest number of students per population, passing little Rhode Island, which held that record last year. It is the first time since we have been compiling these records that one of the more populous states has held the record of the most students by population. Vermont, with thirteen students and 359,611 persons, makes a splendid showing with almost one hundred per cent increase over last year. Connecticut also shows one hundred per cent increase over last year. Indiana, with more than three and one-quarter million population and but twelve students in all of our colleges, reaches a new low. Once one of the biggest contributors to our colleges, she is at least demonstrating in recent years that a two-year premedic requirement and wide privileges do not solve the problem of increasing the osteopathic population of a state nor of keeping our profession alive through keeping our colleges filled with students.

Mississippi, with its 2,000,000 population, hasn't had a student in an osteopathic college for seven years and more. She has a medical board. Kentucky, with over 2,600,000 inhabitants, has five students. This breaks a long time record as five students is the most she has had in many years. If the entire country did only as well in proportion to population, we would have 230 students in all of our six colleges, instead of 1,726. Kentucky has a two-year premedic requirement and a medically dominated board.

California, with 217 students, has the largest total number of students, regardless of proportion to population, of any state in the Union. She has held that position since 1931. For many years Ohio was first and in 1930 had 180 students while California had 153. This year Ohio has 144, the lowest she has had in many years. She is exceeded by Missouri which has 184, twenty more than she had last year and the largest she has had for years. Pennsylvania ties Ohio for third place, with 144, and New York is fifth, with 108, Iowa having just one less. This is the greatest number of students Iowa has sent for many years.

What has all this to do with where our students come from? A great deal, if we study and analyze the origin by states of the student population of our colleges over a period of years. There are independent board states that have not done well. The old South always does rather poorly in sending students. Climate, proximity to the schools, economic conditions, organized activity and personnel of the local profession all are varying factors having bearing. But considered as a general proposition, the states in which the osteopathic profession administers the regulation of osteopathic practice have, in proportion to their population, sent a much larger proportion of students to our colleges than have the states allopathically ruled or allopathically dominated in regulation.

The reason, as has been pointed out before, and should be again and again because it is vital, is that the allopathically dominated legislation tends to hold down the osteopathic population and reduces the number in the field interested in and working to send students back to college. It deprives the allopathically dominated areas of the new blood necessary to fill the natural gaps and numerical increase and which also brings the enthusiasm of youth and helps keep the profession alive.

Right now there are nearly twice as many students in our colleges for every 100,000 population in the independ-

ent board states as there are from the same population in the mixed or medically dominated board states. (By medically dominated or mixed board is meant a medical board on which we have one, and in a few instances two, members.)

NUMBER OF STUDENTS REPORTED

	1927	1928	1929	1930	1931	1932	1933
Chicago College of Osteopathy	124	131	140	117	101	81	82
Kansas City College of Osteopathy and Surgery	103	109	117	125	140	150	163
Des Moines Still College of Osteopathy	226	237	209	203	197	193	221
Los Angeles College of Osteopathic Physicians and Surgeons	205	217	217	266	298	308	294
Philadelphia College of Osteopathy	262	254	302	387	420	349	343
Kirksville College of Osteopathy and Surgery	639	598	566	607	594	630	623

The states, provinces, and countries from which the students come and the number from each is indicated in the following:

STATE, PROVINCE OR COUNTRY	Population	Number of Students 1927	1928	1929	1930	1931	1932	1933
Alabama	2,646,248	0	0	1	2	2	3	4
Arizona	435,573	2	4	3	3	6	8	6
*Arkansas‡	1,854,482	3	3	2	3	3	4	4
*California	5,677,251	187	143	117	153	181	199	217
Colorado	1,035,791	22	24	18	17	15	14	11
*Connecticut‡	1,606,903	17	12	15	12	11	7	15
Delaware	238,380	7	5	6	7	8	6	7
*Florida	1,468,211	12	11	11	8	10	11	11
*Georgia	2,908,506	6	4	8	7	10	12	10
*Idaho	445,032	5	5	4	2	0	4	6
Illinois	7,630,654	107	94	99	111	97	99	92
Indiana	3,238,503	26	28	19	23	19	13	12
*Iowa	2,470,939	91	100	94	95	97	100	107
*Kansas	1,880,999	59	74	70	79	84	75	62
Kentucky	2,614,589	2	4	3	5	8	4	5
*Louisiana	2,101,593	4	3	0	1	1	1	1
*Maine	797,423	21	23	23	26	28	28	26
*Maryland	1,631,526	3	3	1	1	3	3	1
Massachusetts	4,249,614	119	127	151	74	89	94	97
*Michigan	4,842,325	77	66	73	72	83	80	77
*Missouri	3,629,367	144	135	122	128	135	164	184
Mississippi	2,009,821	0	0	0	0	0	0	0
*Montana	537,606	23	36	33	38	24	18	14
*Minnesota‡	2,563,953	33	41	29	24	22	16	16
*Nebraska‡	1,377,963	31	33	42	51	51	48	44
*Nevada	91,058	0	0	1	0	0	1	0
New Jersey	4,041,334	55	53	56	69	72	77	82
New Hampshire	465,293	6	7	6	8	3	2	4
New York	12,588,066	103	98	110	128	136	113	108
*New Mexico	423,317	2	2	0	0	3	2	2
*North Dakota	680,845	15	8	8	5	3	1	2
*North Carolina	3,170,276	2	1	2	1	3	6	6
†Ohio	6,646,697	172	161	179	180	159	146	144
*Oklahoma	2,396,040	10	8	9	10	19	23	27
Oregon	953,786	14	20	17	13	11	6	5
*Pennsylvania	9,631,350	133	124	134	143	174	148	144
Rhode Island	687,497	21	21	30	31	33	34	26
South Carolina	1,738,765	0	0	0	0	0	3	1
*South Dakota	692,849	8	10	11	15	13	9	9
*Tennessee	2,616,556	5	6	2	4	6	4	3
Texas	5,824,715	14	17	23	24	20	16	23
*Utah	507,847	0	0	1	1	1	4	4
*Vermont	359,611	14	9	5	2	2	7	13
Virginia	2,421,851	2	2	2	2	2	2	2
*Washington‡	1,563,396	18	16	9	15	8	9	7
*West Virginia	1,729,205	4	3	5	5	7	3	5
Wisconsin‡	2,939,006	21	17	20	25	23	25	19
Wyoming	225,565	1	2	1	4	4	4	4
District of Columbia‡	486,869	1	1	1	2	1	1	1
*Hawaii	368,336	2	0	1	2	0	1	0
Canada	10,374,196	22	42	34	41	36	29	27
Sweden	6,162,446	2	3	0	0	0	0	0
Norway	2,814,194	1	1	1	0	0	0	0
Scotland	4,842,554	2	1	1	1	1	2	1
England	37,932,137	6	7	3	12	9	9	10
Japan	66,296,000	3	3	0	2	2	1	0
Australia	6,575,255	1	1	0	0	0	1	0
Mexico	16,404,030	2	2	0	0	0	1	0
Brazil	41,477,827	1	0	0	0	0	0	0
South Africa	6,929,000	1	0	0	0	0	0	0
Philippines	12,590,369	1	0	0	6	1	1	1
Ireland	2,971,992		1	1	2	2	1	1
Czechoslovakia	14,726,158		1		0	0	0	0
Russia	156,168,700		2		3	4	3	0
France	41,834,923				0	0	0	0
Armenia				1	0	0	0	0
New Zealand	1,587,547			1	0	0	0	0
Bermuda Islands	27,789			1	0	0	2	1
Venezuela	3,226,000				1	0	0	0
China	474,787,386				2	2	2	0
Colombia	7,851,000				1	0	0	0
Cuba	3,638,174					1	1	0
Germany	65,300,000						2	0
Denmark	3,590,000						1	0
Costa Rica	527,690						1	1

* States with Independent Osteopathic Boards.

† Has a committee of osteopathic physicians.

‡ States with Basic Science Boards. Oregon and Arizona have newly enacted basic science laws.

NOTE—The population of American States is taken from the 1930 census, and of Canadian provinces and other territories within the British Empire from the 1931 census (except South Africa). Other populations are from estimates and censuses made within the last two years.

This student tabulation is made possible through the co-operation of Dean Edgar O. Holden of the Philadelphia College; Dean H. G. Swanson of the Kirksville College; Dr. L. Van H. Gerdine, president of the Los Angeles College; Mr. W. B. Carnegie, registrar of the Chicago College; Mrs. K. M. Robinson of the Des Moines College, and Dean J. M. Peach of the Kansas City College.

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CASE HISTORY AND DISCUSSION—VII

This is the seventh in a series of case histories presented with a view to stimulating more studious search for the basic lesions in puzzling cases. Each report tells what was found, what was done, and the results. The late Russel R. Peckham wrote more or less positive explanations based upon the known foundations in anatomy and physiology.

The patient in this case was a man 30 years of age. The chief complaint was soreness in the right hip and difficulty in rising from a sitting position. The patient's past history revealed a fall from a tree, six months previous to the onset of the pain.

Before coming to me the patient had been treated, without relief, by an osteopathic physician. An x-ray consultant had taken pictures of the hip joint and claimed that there were no pathological findings. He also accused the man of being "osteopathy conscious" and taking treatment as if it were a religion.

Upon examination I found a hypermobile fifth lumbar and reduced mobility in the first, second, and third lumbar vertebræ. I also found that the head of the right femur was restricted in its motion in the acetabulum. Further x-ray study of the lumbar region, with the patient standing first on one leg and then on the other, showed a marked reduced mobility in side-bending to the left.

Treatment was given to increase the mobility of the dorsolumbar junction, particularly to increase side-bending to the left. Care was exercised to avoid heightening the motion of the fifth lumbar vertebra. Rotation of the head of the femur along the lines of Dr. Still's technic was also given. Treatment, applied seven times over a period of two months, resulted in a complete elimination of all symptoms.

Dr. Peckham comments that the condition as described strongly suggests psoas involvement. The psoas major muscle arises from the sides of the lumbar vertebral bodies and their transverse processes, to gain insertion at the lesser trochanter. Any marked change in the behavior of this muscle must result in some dysfunction of the hip joint. The nerve supply of the psoas major arises from the first, second, third, and fourth lumbar nerves, principally from the second and third. The specific location of the most severe lesions, together with the recovery coincident with their reduction, must have been more than coincidence. An additional factor in the problem is found in the fact that any marked restriction of movement in joints served by a muscle, tend to increase muscle tone and prepares the way for a myositis. The same situation may arise in the case of hypermobility, when the muscle is called upon not only to motivate a joint, but also to furnish it with continuous support. All of these factors were present in the description of the spinal condition of this case. Whether an actual lesion of the hip joint was present or not is open to question. At any rate, manipulation of the joint, indicated in the description of treatment, should have a beneficial effect upon psoasitis through forced extension and relaxation. The treatment described should have accomplished the following: (1) relief of nerve reflex irritation to the psoas by joint mobilization, as related directly to nerve reflex mechanisms; (2) relief to fixed muscle tone by increasing the mobility in joints to which a muscle is attached, thereby allowing freedom for normal contraction and relaxation; (3) improvement in the condition of tissue from which stimuli arise to maintain proper state of muscle tone.

PERRIN T. WILSON.

"BEATING THE BACK TRAIL"

It is interesting to note how eminent, so-called authorities of medical education change their viewpoint and position.

Morris Fishbein, M. D., has been active in having hospitals standardized to the extent that only graduates of Class A medical colleges could serve as interns therein.

It is this same Morris Fishbein, M. D., who had an article in the September *American Mercury* on the "Cost of High Obstetrical Care". Very likely some of the information in this article came from advance knowledge of the findings of a committee whose report has since appeared in book form*—a committee headed by Ransom S. Hooker, M. D., appointed by the New York Academy of Medicine. This report shows that through the three years of study, 61.1 per cent of the preventable maternal deaths in the territory were the results of incompetence on the part of doctors. This report goes on to state that competent authorities say that in only 5 per cent of all deliveries need the physician do anything. Yet in 67 New York hospitals investigators found that nearly 25 per cent of deliveries were by instruments. To these mothers, death came five times as frequently as to those who have their children naturally. The observations of this committee were that interns have been given too wide a field of independent activity.

Who was it who said, "Chickens come home to roost"?

J. E. R.

*Book Notices. Maternal Mortality in New York City. Jour. Am. Osteo. Assn., 1934 (Jan.) 33:226.

GOING TO WICHITA? YES, INDEED!

Going to national osteopathic conventions, in fact regular attendance at state, district and local meetings, can be made a matter of habit. Habits are compelling things, and it is interesting to note that good habits are just as commanding as are bad habits. I haven't missed a national convention since the one held in Los Angeles in 1922 and have missed only six since 1908. That is not a perfect record, but it has improved as the years go on. It would be difficult indeed for me to place a value on the friendships made and cemented through my attendance at national meetings. They are priceless. Some of these friends I rarely, or perhaps never, see at any other time. The friendly greetings, the warm handclasps, the kindly inquiries alone are more than worth while.

I get enthusiasm for the next year's work. The spark plugs get renewed, the batteries are recharged and the carburetor is adjusted. My classes, now that I am teaching, get the benefit. When I was in private practice, my patients got the benefit. It was reflected in my practice. Instead of tending to dodge the difficult jobs, I was looking for them. I hailed the bad case with glee because I felt I was ready for it. Perhaps you think you settle down in your own little bailiwick and generate your own steam. Maybe you can. If you can, you are a wonder.

It helps me to find out what the other fellow is doing and thinking. I want to know what is going on. I want to get into the sections and find out not only what the other fellow does, but also to see how he does it. It is the best kind of postgraduate instruction. I hear the best thoughts of the best minds in our profession. I have learned much of value by spending some hours in the exhibits and through visiting with the exhibitors.

I like to feel that I am carrying my share of the load. Organized osteopathy is very important. It is becoming increasingly so. It depends entirely on you and me. What I don't carry, you must. We cannot shift our responsibility to other shoulders and really make progress. I feel that I must give time, energy, money, and myself to my profession. Of course I get far more than I give. One always does. I usually feel that I cannot afford to go, and then I figure awhile and decide that I cannot afford not to go. On previous occasions I have borrowed money to pay my expenses. I may have to borrow it this year. It is a sound investment.

I am expecting the convention at Wichita in July to be the best ever. I know every member of the local committee of arrangements. The plans are practically complete. That committee just couldn't fall down. I am well acquainted with the Program Chairman. If there is anything alive and alert in osteopathic thinking, I'll wager he will have it on the general program or in the sections. He is a go-getter. I know there will be not only a "feast of reason", but also a "flow of soul". Wichita is a fine city and I know I shall have a good time. So I greet each one of you with the question, "Going to Wichita?" and your answer is, "Yes indeed!"

ARTHUR D. BECKER.

A. T. Still Research Institute

CLASS CONTRIBUTIONS—STATEMENTS OF INVESTMENTS

FRED BISCHOFF
Secretary
Chicago

The yearly contributions of $1.00 each made by many members of the profession have added a considerable sum to the endowment of the Institute. This form of contribution was started just a few years ago with the idea of stimulating friendly rivalry among graduates for the honor of their respective classes. Each one, when he sends his contribution, gives the name of his school and the year of graduation. The A. T. Still Research Institute figures up the total number contributing from each class, and the American Osteopathic Association publishes the results.

The 1911 class from the American School of Osteopathy furnished the largest number of contributions in 1931 and again in 1932. In order to save expense the notices for 1933 and 1934 were combined. These notices have been mailed to the profession and it is hoped that each doctor will make a double contribution at this time. That will be a total of only $2.00, one for last year and one for this.

While the endowment fund is not large, it shows a good healthy condition from year to year and supplies a substantial background for the advancement of osteopathy.

While the scope of research activity has been cut down on account of reduced earnings, we are fortunate in being able to do some work, owing to the fact that a large percentage of bonds were insured both as to principal and interest and the insurance company is meeting the interest payments regularly. The earnings from these investments defray all of the current expenses of the Institute.

Following is a statement showing the manner of investment of the endowment fund:

STATEMENT OF INVESTMENTS

Description	Par Value or Principal
MORTGAGE LOANS	
Alfred, Nels, and Betty Anderson	$ 1,800.00
Louisa Burns, Western Osteopathic Lab.	1,000.00
Karl & Augusta Kraneis	4,000.00
Total Mortgages	$ 6,800.00
BONDS	
Bell-Shore Apartments	$ 1,500.00
534 Stratford Building	1,000.00
George M. Forman Realty Trust	2,500.00
Junior Terrace Building	2,500.00
New York Life Building	10,000.00
South View Building	3,000.00
Touraine Hotel	7,700.00
U. S. Liberty Loan 1st	4,000.00
Premium on Liberty Bonds	92.50
Total Bonds	$32,292.50
CERTIFICATE OF DEPOSIT COVERING DEFAULTED BONDS	
1316-1420 Lake Shore Drive Building Northern Trust Company Depository	$ 2,000.00
10891 Greenwood Manor Chicago Title & Trust Company	1,100.00
8296 Hall Apartments Chicago Title & Trust Company	2,900.00
1918 La Salle-Wacker Building Harris Trust Company	1,500.00
B284 State & Washington Building Halsey Stuart & Company	2,000.00

1698-3000 Sheridan Road	1,000.00
Chicago Title & Trust Co. Depository	
Total Certificates of Dep.	$10,500.00
STOCK	
3 Shares American National Assurance Company	$ 150.00
25 Shares No Par Value George M. Forman Realty Trust	
Total Stock	$ 150.00
REAL ESTATE	
Heupel & Hodges Farms	$ 3,000.00
Lots—Los Angeles County	6,000.00
Crockett Farm	7,170.81
Total Real Estate	$16,170.81
Total Investments	$65,913.31

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APPLYING EDUCATION TO OSTEOPATHY

RUSSELL C. ERB, B.S., M.S., F.A.I.C.
Philadelphia

The advances which osteopathy has made in this country during the last twenty-five years have been practically altogether in the science itself and in its value to the public. Future advances will be in the field of education. Therefore it should be timely to give serious thought to our method of education as applied in the several colleges of osteopathy.

It is impossible to formulate a theory of education except from the standpoint of a conception of its aims. In general, the aims of human education can be grouped under two main headings—efficiency and personal culture. Teachers must strive to make students efficient living units and at the same time they must exert all their pedagogical dynamos toward the production of a personal culture in every student coming under their influence.

The time element does not permit of a great deal of expansion along the lines of the personal culture side of education. We hold that such subjects as the basic sciences, while looked down upon by some, are in fact better adapted to satisfy the aims of education than some of our so-called specialty subjects. The basic sciences afford the teacher devices for aiding in personal culture through mental discipline. At the same time, these basic sciences offer a mental armamentarium necessary for efficiency in the formation of the scientific concept of osteopathy.

Let us, therefore, adopt as our premise that as teachers in an osteopathic college our foremost aim is to make our students efficient. In short, it is our duty as teachers to readjust the life of students during an arbitrary period of four years so that at the end of that time they shall be efficient osteopathic physicians.

This process of readjustment, i.e., increasing efficiency, is known as training when applied to lower animals, and as education when applied to human beings.

The principal task before us is that of readjusting the mental lives of our students so that they may efficiently meet the tests arising in a practical world. Are we consciously holding this aim or purpose before us while we are engaged in teaching?

The lecture method of teaching has but little value in modern life. That method of imparting knowledge antedated the printing press. Our students are required to be able to read. They should be required to own text books (not notes). With these requirements rigidly enforced, it is educational asininity to lecture on subject matter already before the students on printed pages. Probably the only reason that the lecture method persists is because of its convenience.

For a time, let us consider some of the disadvantages of the present lecture system:

The lecture method makes no attempt to cultivate original thinking. It answers questions before it asks them. The student is literally bombarded with (let us hope) facts during an hour encounter. His only hope is that he can jot down notes faster than the lecturer talks. When this is impossible, he requests mimeographed notes so that he may have an easier time before examinations.

The lecture method does not permit the student a freedom of self-expression. He is assigned to a room in which he must sit in an assigned seat and exhibit forced attention. His mind is not usually in the receptive mood and here again he must fall back on some meager hastily assembled notes. The student's individuality is lost.

The efficiency of a physician may be measured by his ability as a diagnostician. But even in the so-called presentation clinics, the lecture method influences the period of instruction. A case is presented, the case history is read, the provisional diagnosis announced, and the patient exhibited to the class with the physical findings pointed out to the class to substantiate the diagnosis made by some one else. The student is merely given an opinion, often cloaked as fact. The student is expected to believe and is not encouraged to contradict the diagnosis or to form an original diagnosis. He has his diagnosis done for him. He has not been educated to diagnose for himself.

Let us further amplify this lecturing with case presentation. Suppose that the instructor would adopt a critical mien. Suppose he would question the thoroughness of the case history. By adopting this mood, the student naturally would tend to assist the instructor in finding fault with the historical phase of the case. In doing so, the instructor would be encouraging original and critical thought in the mind of the student, which is necessary for the attainment of efficiency as the aim of education.

A normal student should be made to acquire five attainments, namely:

1. A skill in observation and experiment.
2. A better memory and knowledge of relevant facts.
3. An ability to reason and think in a logical systematic way.
4. A cultivation of the imagination.
5. Development of a critical and impartial judgment.

1. The first attainment, i.e., skill in observation and experiment, cannot be obtained by the now popular lecture method. Laboratories, clinics, and demonstrations are the desideratum. Our entire fabric of knowledge is based on the ideas that come to us from our senses. Not one sense but all senses. Sense perception must be developed to its fullest under the guidance of the skilled teacher. The teacher must afford the stimuli for the needed sensory reactions in the minds of students. Lecturing merely stimulates the ear—and this becomes deaf when sleep overtakes the student. The laboratory period, the clinic hours and class room demonstrations stimulate the eye, the ear, the nose, the tongue and the touch. A good teacher can arouse all the avenues of sense perception.

2. In the attainment of a better memory and knowledge of relevant facts the function of the teacher is that of guide and adviser. The class period must become a conference period during part of which clear assignments are made and the "meat" pointed out from the "gravy" in modern text books.

3. The ability to reason and think in a logical systematic way cannot be attained by sitting through long and sometimes uninteresting dissertations. This brings forward the great word of the Herbartian system, namely, apperception. By this term is meant the active contribution of the mind to ideas received through sense-perception and memory of relevant facts. First we perceive a thing, then we identify or classify it. This identification or classification is what the mind, from its previous knowledge, adds or contributes to the sense-perception. When we identify or classify an object presented to our senses, we apperceive it. Apperception is

necessary in diagnosis. Students who have not been educated along the lines of apperception cannot rightfully be considered efficient.

4. A cultivation of the imagination. Most instructors belittle any tendency that a student may have toward native imagination. Some instructors go to the extreme of utilizing the weapon of sarcasm to put "day-dreaming" students back to their assigned seats in the lecture room. Many lecturers have pronounced objections to the interruptions caused by the imagination of students during class periods. Some teachers adopt the "Don't be foolish" mood or "It can't be done" sneer with students possessing strong imagination. It is the duty of a teacher to encourage imagination. It has been said that a disciplined imagination has been at the bottom of all great scientific discoveries. We must therefore encourage in our students the same imagination that fired the mind of the founder of osteopathy.

5. A development of a critical and impartial judgment. This is the requisite for all clever diagnosticians. Each case or proposition must be judged solely on its merits. The imagination is a dangerous but useful ally. The conference idea of instruction with the teacher-adviser employing the Socratic method of instruction should go far towards the development of a critical and impartial judgment. If a class is informed that a case of diabetes will be presented, all the findings will be interpreted as diabetic because a critical and impartial judgment has not been formed. However, if the case is presented as a questionable condition, a critical and impartial judgment may be stimulated.

In all of these considerations of educational attainments, we must assure the student a freedom with responsibility. Rousseau advocated the utilization of the principle of freedom in education. Freedom was emphasized also by both Pestalozzi and Froebel and stimulated by Montessori. Rigidity in educational practices must be replaced with flexibility and academic freedom. Our students have different native abilities. Our method of teaching must be flexible enough for adaptation in individualistic instruction. Our method of measuring attainment must possess sufficient freedom so that worthy students are not removed from academic engagements because they failed to obtain an arbitrary and numerical grade. However, it is not the scope of this paper to offer our views on the present day systems of grading students. It is sufficient to say that much attention is now being given to this phase of academic activity at our institution. Final examinations in a subject are necessarily the only method of determining the educational progress a student has made. If a pedagogue follows the principles provided in this paper, he should, after a year's contact, be able to determine the "worth" of a student.

We believe that if the aims or purposes outlined in this paper could be made consciously to influence the conduct of all our instructors in the classroom and laboratory, greater progress in osteopathy would be the reward.

BUREAU OF HOSPITALS

EDGAR O. HOLDEN
Chairman
Philadelphia

PROJECTED A.O.A. STANDARDS FOR TEACHING HOSPITALS RECORDS

(Continued from the February Journal)

We have previously cited the importance of record systems in any evaluation of the credibility and worthiness of our hospitals seeking to be listed as full credit institutions. Having made analyses of those sheets and forms that go to make up the chart of the average routine case, we will now complete the picture by considering certain additional sheets and reports that may be essential to the record of a case, depending upon its identity as emergency, surgical, obstetrical or other special category. Always, there should be borne in mind the fact that the accuracy, the completeness and the directness of records and record systems form a very definite index of the character of work done by the staff of any hospital.

1. *Special Laboratory Reports.*—Viewing urinalysis and blood counting as routine for all cases, the following special reports may be required according to the nature of the case: Blood chemistry, blood sedimentation, blood typing and matching, bacteriological examinations, serological examinations, gastric analysis, cerebro-spinal analysis, non-surgical biliary drainage, fecal analysis, transudates and exudates, sputum analysis, etc. All tissues removed in the operating room should be examined, described and diagnosed by a competent pathologist.

2. *Roentgenologic Reports.*—A description of the roentgenologic examinations should be placed in the patient's chart. All x-ray plates or films must absolutely be kept within the hospital, and should be properly filed in the department, be cross-indexed, and be kept in easily accessible places. They are the property of the hospital and may later be needed in legal complications.

3. *Consultation Sheet.*—When consultation is requested, entry should be made, aside from the identifying names and serial numbers of the date, clinical and physical findings, impression (provisional diagnosis), and recommendations of the specialist under his signature with the time of day noted.

4. *Operative Permit.*—If the patient is entering the hospital for specific surgical purposes, permission in the form of signature must be given to allow attending doctor to administer anesthesia and operate. This signature is obtained upon the patient's admission and the permit is appended to the other forms that go to make up the chart. If the patient enters for observation and surgery is later deemed advisable, the permit is signed during the patient's stay and before the operation is performed.

5. *Anesthesia Sheet.*—This sheet is usually made out by the anesthetist. It should be a graphic chart containing the file number, name of patient, names of all concerned in the operation, such as surgeon, assistant surgeon, intern, supervising anesthetist, intern anesthetist, nurse responsible for sponge count, and operating room nurse. It should show the condition of the patient before and after operation with data as to the kind and length of anesthesia, any complications, the type of dressings and the name of the operation.

6. *Operating Sheet.*—The operation should be reported on a separate sheet. It should be written by the intern or by the surgeon, or by his assistant, within 24 hours after the operation. There should be given a detailed description of the operation instead of merely the name of the operation. There should be given briefly the technic of the operation as performed, the pathology found, the parts removed and their condition, the presence or absence of infection, and whether bleeding was ordinary or excessive. Anything unusual, and whether the wound was closed or drained, should be noted. The report should be signed by the writer and countersigned by the surgeon.

7. *Obstetrical History.*—This should contain a record of all examinations made and attention given in the prenatal clinic, viz., urinalyses, blood pressure, vaginal and cervical smears, culture reports, Wassermanns, history and findings, patient's physical condition, measurements of both the pelvic inlet and outlet, position of fetus and fetal heart sounds. This record, or a transcript thereof, should be taken to the ward as soon as the patient is admitted, and should finally be attached to the filed record of the case.

8. *Labor Sheet.*—This should contain the pelvic measurements, if not available from the prenatal clinic, the history, Wassermann test, blood pressure, urinalyses, position of the head or other presenting part, notes on the delivery, forceps if used, time elapsed in each stage of labor and the condition of the patient after delivery.

9. *Baby Sheet.*—This should provide for footprints, for a notation of the weight at birth and daily thereafter, of the condition of the stools and digestion, etc., and also a record of feedings.

10. *Report of Cause of Death.*—This sheet identifies with all directness the essential particulars concerning the demise of a patient. It should comprise both primary and secondary causes of death with a record of their duration, what tests confirmed the diagnosis, whether an operation preceded death, whether a postmortem examination was desired, whether friends or relatives were present at the time of death, etc.

11. *Autopsy Permit.*—The importance of this sheet need not be more than mentioned. Teaching my means of autopsies has assumed a most significant position. Racial and religious prejudices have seemed to render the matter diffi-

cult. Indifference and indolence on the part of pathologists and interns are not to be overlooked. A relative, if properly approached will often grant permission, under signature, authorizing the physicians of the hospital to perform an autopsy on the body of the patient with the object of ascertaining the real cause of death. As a general observation, it may be established here that at least 15 per cent of all deaths in any of our hospitals should be followed by postmortem examinations.

12. *Postmortem Reports.*—On a separate sheet for the purpose, the findings of the pathologist should be painstakingly presented in detail. Needless to say, the relationship of the information here tabulated is highly important to the teacher and to the student. Indeed, at staff conferences the consideration of all necropsies during the month should occupy central attention. Comparison of antemortem signs and symptoms with postmortem observations is decidedly profitable.

13. *Follow-Up Record.*—The record of progress of any case should not stop by any means with the patient's discharge from the hospital. From the standpoint of a teaching institution it is unsound to dismiss a patient as cured or improved without further checks on the condition of the patient at suitable periods. The final result of any given case may prove to be at tangent to the recorded condition, upon actual investigation and follow-up by a social worker or other investigator for the institution.

In the next installment we will conclude our analysis of essential aims and purposes in the matter of records and record systems in teaching hospitals and then proceed to the consideration of other quite necessary provisions for such institutions.

E. O. H.

(To Be Continued)

LOS ANGELES COUNTY HOSPITAL

The name of Unit No. 2 of the Los Angeles County General Hospital has been changed to "Osteopathic Unit."

G. W. Woodbury has resigned after six years of service as superintendent of Unit No. 2, and his resignation has been accepted.

Department of Public Affairs

E. A. WARD
Chairman
Saginaw, Mich.

BUREAU OF CLINICS

A. D. BECKER
Chairman
Kirksville, Mo.

KANSAS CITY BABY HEALTH CONFERENCE AND CLINIC

The Kansas City society is laying plans for its second annual Baby Health Conference and Clinic to be held at the Baltimore Hotel, Kansas City, April 25 to 28.

Quintos W. Wilson of the Southwestern Hospital, Wichita, will be the guest of honor. The clinic will be conducted at no cost to the public and the registration fee to attending physicians will be only $2.00.

The first three days will be given over to lectures to the doctors and clinical examination of children. On the fourth day the unusual cases will be brought back for reëxamination and for treatment to be prescribed.

These examinations will be made by specialists before the entire group. An educational program for parents only will be held on the night of the 26th. The night of the 27th will be marked by the banquet and the presentation of cups to the most nearly perfect boy and the most nearly perfect girl under three years of age and the same between three and five years of age.

LEGAL AND LEGISLATIVE

A. G. CHAPPELL
Legislative Adviser in State Affairs
Jacksonville, Fla.

BARRED AS COUNTY PHYSICIANS IN SOUTH DAKOTA

The attorney general of South Dakota on July 24 directed an opinion to the state board of health that an osteopathic physician is not eligible to the office of county physician in that state. He said the only authority he finds for the appointment of a county physician is in section 10055 which provides for the appointment annually of a "well qualified" physician to attend the county asylum. He says the provisions of this section existed in the laws of the state and of the territory long before the practice of osteopathy was recognized there. He says that the law governing the practice of osteopathy does not authorize the performance of major operations and limits doctors of osteopathy "to the methods of practice as taught in the standard colleges of osteopathy." He holds that the requirement for a "well qualified physician" "contemplates that the person so appointed shall be one holding a physician's license under the provisions of section 7705 of the Code and whose right to practice is not limited."

STATE BOARDS

California

At the annual meeting of the Board, held January 9 in Sacramento, the following officers for 1934 were elected: President, E. B. Jones, Los Angeles; vice president, E. G. Bashor, Los Angeles; and secretary-treasurer, L. R. Daniels, Sacramento.

Governor James Rolph on January 15 inadvertently named a chiropractor, M. E. Howland, Placerville, to the Board of Osteopathic Examiners, to succeed L. R. Daniels, the secretary. This error was immediately rectified by the governor, however, and newspapers report that he announced that Dr. Daniels was to serve temporarily on the board and that his reappointment was "a possibility."

Florida

Four new members to the osteopathic board were appointed January 18 by Governor Sholtz. They are: R. C. Heldt, Daytona Beach, succeeding Frances Tuttle, Miami; E. W. Flynn, Tallahassee, succeeding Julia Kline, Jacksonville; Nowal E. Brown, Tampa, succeeding Alfred D. Glascock, St. Petersburg; and B. P. Harter, Gainesville, succeeding I. M. Carr, Tallahassee. Ralph B. Ferguson, Miami, and A. G. Chappell, Jacksonville, retain their places on the board.

Georgia

The appointment of W. Arthur Hasty, Griffin, and A. G. Hill, Savannah, to the State Board of Osteopathic Examiners was mentioned in the February JOURNAL. Their terms should have been given as expiring September 10, 1936.

Illinois

O. C. Foreman, Chicago, osteopathic member of the State Board, advises that examinations will be held on the following dates during 1934: April 10, 11, 12, June 26, 27, 28, October 16, 17, 18.

Minnesota

Arthur E. Allen, Minneapolis, is the osteopathic member of the Basic Science Board. The Board meets on the first Tuesday of April, June and October. All applicants passing the basic science examination can take the osteopathic board examination immediately following. Applications should be made to the secretary, J. C. McKinley, M.D., University of Minnesota, Minneapolis.

Oregon

The first examination under Oregon's new basic science law applicable to all new members of the healing professions was held February 24 at Portland.

Tennessee

R. L. Park, Trenton, was recently reappointed by Governor Hill McAlister to the osteopathic examining board. This is Dr. Park's third term of five years service on the board.

Thirty-Seventh A.O.A. Convention

Hotel Allis, Wichita, July 23-27

CONVENTION PROGRAM

LOUIS H. LOGAN
Chairman
Dallas, Texas

THE WICHITA PROGRAM

Realizing that osteopathy embraces the complete field of therapy with its general practice and several specialties, we are trying to arrange a program for the Wichita convention that will be of continuous interest. The whole program is an attempt on the part of the speakers to bring out the scientific osteopathic concept as applied to practical work. The chairmen of the sections are trying to combine the scientific with the practical, bringing out the points of specific interest in each section.

The general program runs daily through the morning and part of the afternoon. Throughout the week the noon recess will be from 12:00 m. until 2:00 p.m., allowing time for round table conferences and other necessary meetings which usually take place with luncheons. In the afternoon the general program will run from 2:00 until 3:30 and the sections from 3:30 until 5:30 or 6:00. Those sections using clinics can take care of them in the afternoon, though some may arrange for clinics in the morning, prior to the opening of the general sessions.

Meetings of Trustees and House of Delegates will be held at the usual hours.

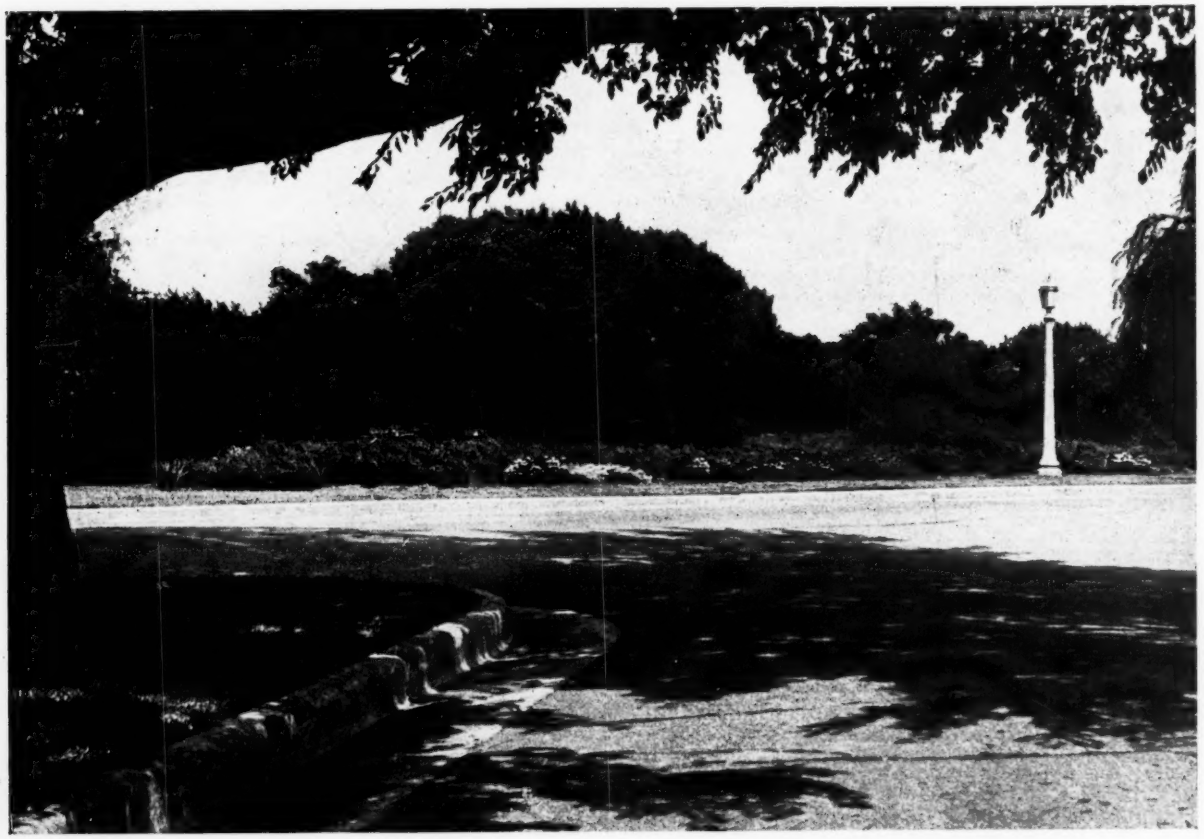
Friday's program is extremely full. It is felt that this will be a splendid thing since the work in the sections and the House of Delegates will be completed so that a larger attendance will be possible. The five-day convention is short enough at the best and enough good work is included on Friday to make it well worth while to stay until the close of the program.

So far as time is concerned, the entire program is full. Certain adjustments will doubtless have to be made so that the outline as given below may not be accurate as to exact hours, but it will give a very good idea of the high points of the program:

Monday, July 23, following the usual opening exercises, the President's address and the report of the Executive Secretary, will come the scientific program. Harold I. Magoun will open with "Researches in Body Chemistry and Their Relation to Osteopathic Fundamentals", followed by George J. Conley with a correlative subject, "The Role of the Osteopathic Lesion With Respect to Some Common Surgical Disorders". In the afternoon the reports of John E. Rogers and E. A. Ward, chairmen of the Departments of Professional Affairs and Public Affairs, will be given, followed by Frank Vaughan discussing "Osteopathic Procedures in Obstetrics".

Tuesday, July 24, W. Curtis Brigham opens the morning program with "Chemical Origin of Viscerosomatic Reflexes", followed by W. W. W. Pritchard who will speak on "Osteopathy as Preventive Medicine", Mary E. Golden on "Late Research in Foods", Asa Willard on "Fundamentals vs. Incidentals", Quintus L. Drennan on "Practical Osteopathic Orthopedics", Thomas R.

Scene in Central Riverside Park, Wichita, Kansas



Thorburn on "Osteopathic Opportunities". Chester D. Swope, chairman of the Public Relations Committee, will make his report. In the afternoon Wallace M. Pearson will speak on "Physiological and Biochemical Reasons for Removing Osteopathic Pathology by Manipulations", R. H. Peterson on "Local Manipulative Treatment of Pathologies of the Nose and Throat", H. V. Halladay on "Osteopathic Nomenclature", L. V. Credit on "Fractures in Relation to General Practice" and Ray G. Hulburt on "Professional Publications".

Wednesday, July 25, Louis C. Chandler will open the morning program with "Complications of Pneumonia", followed by Charles F. Kenney who will speak on "Effects of Shock and Exhaustion", S. V. Robuck on "Sclerotic Heart Disease", Fred E. Johnson on "Osteopathy in Incipient Tuberculosis", F. P. Millard on "Sacro-Iliac Technic" and Dean Swanson, who will give the A. T. Still memorial address. In the afternoon a symposium will be presented as follows: R. N. MacBain, "Osteopathic Pathology", James A. Stinson, "Principles of Osteopathic Technic", J. Stedman Denslow, "Osteopathic Diagnosis". John P. Schwartz will close the afternoon program.

Thursday, July 26, H. V. Halladay will open the morning program with "Intervertebral Foramen", followed by George M. McCole who will speak on "The Osteopathic Spinal Lesion", Edgar D. Heist on "Nerves", George M. Laughlin, "Goiter", A. G. Chappell, "Legislative Report". In the afternoon L. P. Ramsdell will speak on "Why Patients Are That Way", A. G. Read on "Chests of Children", A. D. Becker on "Clinics", and an O.W.N.A. report.

Friday, July 27, the installation of new officers will open the morning program, followed by symposiums on "X-Ray", "Psychiatry" and "Thermogenic Work". Anna Mary Mills will also present a paper on "Analytical Psychology".

PLAN YOUR TRIP TO THE CONVENTION . . . NOW!

To any member of this organization who thinks of motoring to the Convention, the Conoco Travel Bureau, Denver, Colorado, offers free travel service. They will send you on request, a set of state maps individually marked for you, to show you the best and most direct routes from your home to the Convention. The types of roads and road conditions will be indicated, and lists of hotels and cottage camps included.

In addition you will receive beautifully illustrated literature descriptive of places of interest along your way. Are you interested in America's history, in scenery, in fishing, in golf, in hunting, in big cities, or would you like to know the shortest way to the Convention? Write the Conoco Travel Bureau, Denver, Colorado, or fill in a convenient application card available at any Conoco service station.

American Osteopathic Society of Ophthalmology and Otolaryngology

C. C. REID
Editor
Denver

POINTS ON EAR TREATMENT

W. J. DEASON, D.O.
Wichita

1. After years of application, finger treatment and finger surgery for the normalization of the eustachian tube still holds an important place in treatment. When indicated it is only a part of the necessary treatment, but is certainly an essential part.

2. Dilatation of the lower or pharyngeal portion of the eustachian tube by means of a suitable instrument—exercising great care to avoid trauma—is of value in addition to direct finger treatment of the external tubal parts and lateral pharyngeal walls.

3. It is useless to treat the eustachian tubes and leave an infected nasopharynx, posterior nares, intranasal cavities or sinuses, as the reinfection will cause further tubal catarrh and ear trouble.

4. A high nasal septum operation and sinus evacuation is often the best procedure in beginning ear treatment because it stops the source of infection and precludes reinfection.

5. The use of a large stiff bougie to open the lower part of the tube and break up adhesions is often helpful and a necessary part of tubal treatment—sometimes a small metal applicator well lubricated and carefully applied is effective.

6. The use of a small, very soft and flexible bougie with olive tip is of value in opening the upper part of the tube all the way through into the middle ear cavity. In many cases of second and third stage catarrhal deafness I use such a bougie carrying a low percentage mixture of phenol, menthol and camphor into the middle ear. It favorably affects middle ear pathology just as similar substances influence intranasal conditions.

7. Following the above treatment, direct manipulation of the ossicular chain by means of a small soft bougie often helps to relax those structures.

8. Following this treatment, in cases of retracted ear drums, I use the ear tip and suction bulb, fixing it in the external meatus and quickly "jerking" away (taking care to avoid rupturing very thin drums) thus drawing the ear drum outward and further relaxing the ossicular chain.

9. Dr. Edwards' treatment, applying suction to the nares and external meatus simultaneously, is effective. Or one may use two suction bulbs and accomplish the same results—an assistant using one bulb.

10. All of this treatment is stimulating to inner ear function.

11. The proper and careful use of the eustachian catheter, whether applied through the inferior meatus of the nose or under the soft palate, to dilate the lower portion of the tube, to carry or direct soft bougies or very gently to ventilate the middle ear is often of actual value but it certainly can do harm if carelessly used.

12. Direct digital stimulation of the upper, inner wall of the eustachian tube will usually stimulate the otic ganglion, reflexly affect the inner ear favorably and increase hearing. This, however, is often only a temporary improvement.

There are many methods of technic of direct ear treatment that have value and there is no single method that will do all. It is the specialist's business to develop thoroughness and certainly the osteopathic specialist falls far short when he neglects structural adjustment of the cervical and upper thoracic, clavicles and ribs for this is often of greatest importance.

Obstetrics and Gynecology

GRACE PURDUM PLUDE
Chairman
Cleveland

FUNCTIONAL UTERINE HEMORRHAGE*

HARRIET L. CONNOR, D.O.
Los Angeles

I have chosen functional uterine hemorrhage as the subject of this paper not only because it is one of the most common conditions met with in gynecological practice, but also because it, along with other functional pelvic disturbances such as dysmenorrhea and amenorrhea, is at the present time the object of a vast amount of interest and research which is being carried on in the laboratories and clinics both in this country and Europe.

The gynecologist is indebted to the physiologist for the important advances made in the field of pelvic physiology in the past few years. Successful treatment of all disturbances connected with the complex mechanism of female reproduction has always been prevented by the fact that there had been available so little accurate knowledge of the factors underlying normal function.

DEVELOPING KNOWLEDGE OF ENDOCRINES

The whole subject of pelvic physiology has undergone almost a complete reversal in the past quarter century.

*Delivered before the 37th A.O.A. Convention, Milwaukee, 1933.

Although as early as 1849 Berthold demonstrated that the ovary is an endocrine or internal secreting organ, it was not until the beginning of the present century that Halban demonstrated that the anatomic and physiologic development of the uterus, as well as of the other genitalia, is governed by this endocrinal function of the ovary. Previous to this important discovery, the uterus had always been thought of as an independent structure of primary importance in the menstrual function.

Perhaps the most significant contribution to the whole complex problem of female endocrinology was made by Allen and Doisy in 1922, when they found that an extract made from the graafian follicle and injected into castrated rats and mice produces changes in the vaginal discharge of these animals characteristic of normal estrus. They not only discovered this hormone, but also developed a simple biologic test for it and standardized the potency of the extract in terms of rat units. Since this discovery, the estrus producing hormone has been found not only in the follicle, but also in the urine, blood and feces of pregnant women, in the amniotic fluid, in the menstrual blood and in the blood of the newborn child.

In 1928 Doisy succeeded in isolating the hormone in a pure crystalline form and gave it the name theelin. A few months later a German investigator announced the discovery of a similar product.

Following these discoveries a great wave of enthusiasm swept the country and the new hormone was hailed as a panacea for all the disturbances associated with underdevelopment of the pelvic viscera such as amenorrhea and oligomenorrhea, essential dysmenorrhea and sterility. Probably these extravagant claims emanated more from the pharmaceutical houses manufacturing the product than from the more disinterested research workers themselves, who were experimenting with it. At any rate, it was received with avidity by the practicing physicians, who had long been waiting for some panacea for these bugbears of gynecological practice. Some of the research men themselves were so enthusiastic about this new hormone that one of the most prominent of them suggested that it be called the female sex hormone; he forgot, temporarily, that the ovary includes another important structure, the corpus luteum.

As early as 1903 Fraenkel proved conclusively that the corpus luteum is necessary to pregnancy, but it was not until 1929 that Corner established the fact that it has a secretory function. Hisaw more recently has succeeded in isolating the hormone in crystalline form. The term progestin has been given to it, from the fact that it is necessary to the production, in the uterine mucosa, of the so-called progestational changes. It has also been demonstrated that the corpus luteum, following the rupture of the graafian follicle, continues to produce theelin. Thus this little body has a dual function in the premenstrual or progestational endometrial changes.

Certain other facts in regard to the corpus luteum have long been known clinically. That it retards the development of the immature graafian follicle and subsequent menstruation has been conclusively demonstrated, and this knowledge is made use of by veterinarians who manually rupture persistent corpora lutea as a remedy for sterility in certain of the domestic animals. The importance of the corpeus luteum in the nidation of the fertilized ovum and the formation of the placenta, as well as its stimulating influence on the mammary gland, have for some time been matters of clinical observation.

COMPLEX FUNCTIONS OF PITUITARY GLAND

The most important recent discovery in the endocrinological field was the demonstration that the anterior lobe of the pituitary gland produces a hormone which not only initiates ovarian function at puberty but also regulates its subsequent monthly activity. To this product the term anterior pituitary sex hormone has been given. Certain investigators are of the opinion that two sex hormones, one termed prolan A, the other prolan B are secreted by this gland, the first causing maturation of the immature graafian follicle, the other influencing the subsequent development of the corpus luteum. Other investigators believe that varying amounts of the same hormone are responsible for both phenomena.

In the past few months some evidence has been produced tending to prove that the so-called anterior pituitary sex hormone does not bring about the ovarian changes directly, but stimulates the production of another intermediary endocrine substance from the anterior pituitary, which is the direct agent causing ovarian activity. This would add to the burden which already seems to be placed on this gland, since two other important hormones have already been isolated. One of them, termed the growth hormone, influences skeletal growth, the other, a metabolic hormone, acts in conjunction with the thyroid to control general body metabolism.

The anterior pituitary sex hormone is found in large quantities in the blood and urine during pregnancy, which demonstrates its importance in this process. This fact is the basis of the well known Ascheim-Zondek test for pregnancy, since demonstrable quantities of the hormone are present in the blood as early as two weeks following conception, before any clinical signs can be demonstrated. As yet no test has been found delicate enough to demonstrate its presence in the blood stream in the non-pregnant woman in normal or subnormal quantities.

ENDOCRINES IN SEX CYCLE

Not only have the endocrines concerned in the normal sexual cycle been isolated, but by careful observations on animals and human subjects, the exact period of influence exerted by each of them has been calculated. In addition to this, the changes going on in the uterine endometrium at the different phases of the cycle have been ascertained.

The sex cycle may be said to start after the three or four day rest period which follows menstruation, and during which all activity in the uterus and ovaries is more or less quiescent. The first activity of the cycle comes in the beginning development of the immature graafian follicle, which is to furnish the next ovum, under the influence or stimulus of the anterior pituitary sex hormone. The follicle increases in size and approaches the surface of the ovary, to a position just under the tunica albuginea or connective tissue coat of this structure. There its ripening or maturation takes place, in which it loses half its chromatin material and becomes ready for fertilization.

Its rupture through the surface of the ovary then takes place. In the majority of cases, this has been conclusively demonstrated to be from thirteen to fifteen days following the beginning of the previous menstruation. During this phase of follicle growth, the follicular hormone, theelin, or as it is sometimes called, oestrin, is being elaborated and liberated into the blood stream in increasing amounts, from which it is absorbed by the peritoneal lymphatics.

While this process is going on, certain changes are taking place in the uterine endometrium as the result of its being sensitized to the follicular secretion, which is circulating in increasing quantities in the blood stream. With the development of the new follicle and the production of theelin, the endometrium begins the process of regeneration in which the spongy and compact layers are again reproduced. After the rupture of the follicle and formation of the corpus luteum, this body continues the production of theelin in even greater quantities, and also begins to secrete its own specific hormone progestin. Under the combined influence of these two hormones, uterine vascularization continues, with its typical proliferation of endometrial stroma and glandular tissue, which results in the thickened, highly vascular membrane known as the premenstrual or progestational endometrium. In this action of the corpus luteum is demonstrated the synergistic, as well as the antagonistic, relation to the graafian follicle. The influence of the corpus luteum occupies approximately ten days of the entire twenty-eight or thirty day cycle, and ceases rather abruptly a day or two before menstruation. In fact, it is this degeneration of the corpus luteum, with the sudden withdrawal of its hormones, which produces the changes in the endometrium and, subsequently, the menstrual flow. The menstrual cycle is thus seen to be a succession of anabolic and catabolic processes, of regeneration following degeneration.

ABNORMALITIES OF SEX CYCLE

The sexual cycle appears to be a self-regulating mechanism. The excess of theelin thrown into the blood stream at the height of corpus luteum activity reaches the

point where it acts as an inhibitor of anterior pituitary activity. The latter gland stops the production of its hormone; the withdrawal of this stimulus causes in turn, the degeneration of the corpus luteum and the discharge of the accumulated theelin in the menstrual flow. The resulting lowered theelin level in the blood stream again stimulates the anterior pituitary to activity and the cycle is repeated. This seems a logical explanation for the remarkable periodicity with which ovulation and menstruation occur. It is apparent, however, that if the sequence of events is to occur in a regular and orderly fashion, a nice balance must be maintained among the glands concerned in the function.

It has been shown by this brief description that true menstruation is dependent upon both a normal graafian follicle development and ovulation, and a subsequent corpus luteum formation and degeneration. It has been demonstrated, however, that a periodic bleeding is possible without the formation of a corpus luteum if the follicle does not rupture, but instead undergoes a cystic atresia, with the production of a sufficient amount of theelin to activate the endometrium, and then, for one reason or another, ceases to function. This cannot be called a true menstruation, however, since the typical progestational changes in the endometrium are incomplete, and the sloughing is not of the regular, orderly type.

The continued production of theelin by the cystic follicle may result in an accumulation of the hormone in the blood stream, so that there is constantly a threshold or excessive amount in the blood and urine. This excess depresses the production of anterior pituitary sex hormone and as a result the ovary receives no stimulation. Ovulation does not occur and a period of amenorrhea ensues.

The exact part played by the thyroid gland in the sex cycle is not known, although certain clinical manifestations of disturbance of the menstrual cycle are known to exist in thyroid dysfunction. Even less is known about the adrenals in this connection; yet certain conditions of the adrenal cortex such as tumors and Addison's disease are known to influence growth and function of the genitalia.

FUNCTIONAL UTERINE HEMORRHAGE

The newer physiology has thrown an entirely new and brighter light upon the whole subject of functional menstrual disorders, and particularly upon that little understood condition, functional uterine hemorrhage. While the last word on this question has not been said and a logical explanation for all such bleedings cannot be given, yet a basis has been laid for a more intelligent conception of the underlying causes, and for more efficient and at the same time less radical treatment.

By functional uterine hemorrhage we refer to the condition in which excessive amounts of blood are lost at the regular menstrual periods, or at irregular intervals not related to the period, in which there is no demonstrable pathology in the pelvis to account for it. We shall thus leave out of consideration such conditions as uterine fibroids, malignant uterine growths, ovarian tumors, and uterine displacements, any of which are well known causes of abnormal uterine bleeding.

ENDOCRINE AND BLOOD CONDITIONS CAUSING HEMORRHAGE

This brings us down to endocrine disturbance and blood dyscrasias as the possible factors in so-called functional hemorrhage. Even in the pathologic conditions mentioned, with the possible exception of malignant uterine neoplasms and subinvolution, ovarian dysfunction, by complicating the disease, is now held to be the chief factor in the abnormal bleeding. Needless to say, the greatest care should be taken to eliminate actual pathologic states, particularly uterine malignancy, before the case is regarded as an endocrine problem; mistaken diagnosis and delay in the proper treatment may decide the difference between a successful and an unsuccessful outcome.

Having eliminated pelvic pathology, the next step is the elimination of abnormal blood states which may be a factor in the case. Uterine hemorrhage due to chlorosis, that primary anemia which the older gynecologists found so frequently in the adolescent girl, seems to be almost a thing of the past. No doubt improved general hygiene and more attention to the diet of the growing child has tended to eliminate to a large extent this condition as a cause of uterine bleeding. Recently, attention has been called to secondary anemia due to dietary deficiencies and other causes, as a factor in functional hemorrhage. Whether this occurs as the result of increased permeability of the uterine vessels, or is due to secondary endocrine disturbance is not well understood, but it is a clinical finding to be kept in mind.

Purpura hemorrhagica, a blood disease characterized by reduction in the blood platelets and decreased coagulability of the blood, is an infrequent cause of excessive uterine bleeding. This disease usually presents no difficulty in diagnosis, since it also manifests itself in subcutaneous hemorrhages and bleeding from other mucous membranes, especially that of the mouth. True hereditary hemophilia is a disease supposed to be confined to the male sex, although transmitted from the maternal side, and need not be taken into consideration in this connection.

Decreased coagulability of the blood due to calcium deficiency is a factor to be kept in mind in uterine hemorrhage. Recent attention has been drawn, in such cases, to the possibility of parathyrdoid dysfunction as being the underlying cause of the disturbed calcium metabolism. One investigator has reported good results from the use of a parathyroid extract in a series of cases of uterine hemorrhage of this type. In actual clinical practice, decreased blood coagulation from calcium deficiency seems to be of negligible importance in uterine hemorrhage. In Unit Number 2 of the Los Angeles General Hospital, a fairly large number of cases, in which the coagulation time was checked, failed to bring to light a single case in which calcium deficiency was a factor. It can be seen that abnormal blood states play a relatively small part in the production of uterine hemorrhage, as compared with endocrine disturbance.

So much has been written and said of the endocrines, which has had as its basis more fancy than fact, that a justifiable feeling of skepticism has arisen as to the value of any therapy of this type. In the following discussion, therefore, only material which is generally accepted by the foremost investigators in the field has been used; the case histories cited are to illustrate generally accepted facts, rather than to make original deductions.

PUBERAL HEMORRHAGE

Uterine hemorrhage in the adolescent girl, or puberal hemorrhage, as it is often called, is a phenomenon which in the past has been regarded as almost a physiological condition, comparable to hemorrhage occurring at the menopause period. We now know that neither condition can be considered strictly physiologic; at least we know that they frequently go beyond physiologic limits and can be called real pathologic disturbances which demand appropriate treatment.

In puberal hemorrhage the difficulty of diagnosing the causative agent is much reduced by the fact that most of the causes for uterine hemorrhage which are found in the adult can be eliminated. New growths such as malignancies and fibroids are extremely rare in the adolescent girl, and displacement and pelvic inflammation have a comparatively low incidence.

The most significant finding in hemorrhage of this type is a condition of the ovaries known as follicle atresia, which is caused either by deficient anterior pituitary function or inadequate response on the part of the ovaries to normal anterior pituitary stimulation. This may seem paradoxical, since uterine function has always been considered an index of ovarian activity; a decrease in the endocrine output of either gland should, to all appearances, result in a decreased uterine response with absent or scanty menstruation, rather than in hemorrhage. However, it has been demonstrated that both amenorrhea, or scanty menstrual flow, and excessive blood loss can be caused in different cases by the same condition.

The fault usually lies in an insufficient amount of anterior pituitary sex hormone to bring the graafian follicle to a complete state of maturation; follicle atresia takes place at different stages of the follicle development. This process continues until there are present in the ovary a number of these underripe atretic follicles, each producing small amounts of the follicular hormone. Rupture of the ovum from the follicle does not take place;

and no corpus luteum is formed. As a consequence, the endometrium, deprived of the corpus luteum influence, does not reach a normal premenstrual stage and menstruation does not ensue. During the period of amenorrhea which follows, the endometrium becomes thickened and hyperplastic from the continued follicle activity. Finally, either as a result of a mechanical break in the mucosa or due to an accidental corpus luteum formation from a gradual accumulation of anterior pituitary hormone, bleeding starts which may be excessive and prolonged. We note here that amenorrhea and hemorrhage may result from the same basic cause; i.e., a failure in complete ovarian function, and that excess of follicular hormone sometimes must be ascribed to failure rather than to increase in ovarian activity.

ARTICULAR LESIONS AND THEIR EFFECTS

It is thought that in some cases the primary deficiency may lie in the ovary itself rather than in the anterior pituitary, and that it may be due to some local structural defect, caused possibly by a circulatory disturbance which is interfering with ovarian development.

The thyroid gland, also, seems in some cases to be primarily at fault; under function of the gland at the developing period tends, indirectly through the anterior pituitary, to inhibit ovarian action.

The question arises as to the possible causes of failure of these glands to perform their functions in a normal manner. In this connection, as osteopathic physicians, we are interested in the part that spinal lesions may play in bringing about circulatory changes which may be responsible. I wish to recall the work done at the A. T. Still Research Institute in the production of spinal lesions in experimental animals. Dr. Burns has reported that upper cervical lesions seriously affect pituitary gland function and also that the offspring of lesioned animals show a tendency to similar disturbance. The effects produced by lower dorsal and upper lumbar lesions upon pelvic circulation and function have been demonstrated. It is more difficult to draw similar deductions in the human subject on account of the greater difficulty in controlling the influence of other factors which may play a part; but the possibility of the influence of such lesions in human function should not be lost sight of, even when other apparent causes are present.

HEREDITY AND ENDOCRINOPATHY

Hereditary tendency to endocrinopathy is a factor which cannot be overlooked. Sometimes this takes the form of deficiency in some particular gland, again it is general infantilism, evidenced not only in the endocrine system but in the whole make-up, especially the muscular and vasomotor nervous systems. If all the truth were known, a certain percentage of these cases of congenital glandular deficiency could be traced to the effects of syphilis, alcoholism or tuberculosis. The early childhood infections, particularly if they occur at puberty, may have a profound effect upon the endocrine system, especially the anterior pituitary and thyroid, and retard the rapid completion of development of the pelvic viscera which should occur at this time.

Malnutrition caused by dietary deficiency or imbalance is a cause found among all classes, rich and poor alike. It is thought that protein and calcium deficiencies are especially depressing to ovarian function. Any constitutional disease with an associated anemia may be a factor in endocrine depression; such diseases include tuberculosis, nephritis, heart disease and diabetes.

The faulty development is frequently due to generally poor hygiene at the important puberty period. The physiology of puberty is more complicated in the female than in the male, and the care which is given the girl during these two or three years determines the establishment of a normal menstrual function, and general health throughout her entire life. At this time, there are marked reconstructive changes both somatic and psychic which are accompanied by alterations in digestion, assimilation and circulation, as well as marked changes in the functions of interrelated endocrine glands. The demands made upon the general stability of the girl at this time are much greater than is generally realized. As a result of all this extra load, the evolution of the generative organs may be interfered with; as a consequence, we frequently see girls with asthenic and neurotic tendencies, with irregular, painful and frequently excessive menstrual function.

The crowded school curriculum, together with the prodding of ambitious parents and teachers are frequently responsible for the girl's inability to meet the situation. Insufficient time is left for outdoor recreation and proper relaxation, so necessary for the child at this age. Mental development is forced at the expense of the physical. The natural reserve force which she happens to have will determine the degree of injury which may be done in this way.

In each case, the determination of the particular type of endocrine deficiency and the underlying etiologic factors require a careful study from all possible angles. The general body type may give a clue as to the gland which is primarily at fault. General physical and pelvic examinations and laboratory work may be needed to further establish a diagnosis.

PITUITARY HYPOFUNCTION

Girls and women with moderate hypofunction of the pituitary gland are medium sized and show typical adiposities, which appear in early youth and are limited to the hips, lower abdomen, thighs, upper arms and breasts. These women have relatively small hands and wrists, feet and ankles. Male distribution of the pubic hair—a tendency for the hair line to point toward the umbilicus instead of presenting a straight or concave upper line—is not uncommon, nor is the growth of hair on the upper lip and chin.

The genitalia almost invariably show hypoplasia. The labia minora are small, the vagina is short and narrow, and the uterus is small, firm, and in a position of either anteflexion or retrocession. This genital under development is in marked contrast to the general well developed appearance of the girl. The sugar tolerance test shows an increased sugar tolerance, and eye examination shows a contraction of the visual fields. This latter finding is almost diagnostic of pituitary hypofunction. The basal metabolic rate is somewhat lowered, but not enough to be of the diagnostic importance that it is in thyroid disturbance.

Primary ovarian infantilism does not appear until puberty, when an arrest of genital development and other physical changes occur. Minor degrees of ovarian deficiency produce a slight or fairly normal stature with a narrowing of the pelvis and sometimes a disproportionate overgrowth of the long bones. This is in contrast to anterior pituitary deficiency, in which these bones are proportionately short. They are often very feminine and attractive in appearance. The skin is soft, the larynx small, and the pubic hair may be normal, scanty or of the masculine type. Excessive hirsutism is occasionally seen. The breasts are small, the pubis is narrowed and the normal fat pads about the hips are lacking. The uterus is of the infantile or subpubescent type, as are the external genitalia. These girls are usually below normal weight and are predisposed to poor posture and visceroptosis. They have a rather characteristic temperament, being self-centered, emotional and critical. Dysmenorrhea and nervous fatigue are more common in this type than in those showing pituitary deficiency.

The laboratory finding of greatest significance in primary ovarian hypofunction is the presence of a demonstrable quantity of anterior pituitary sex hormone in the circulating blood. This is found by the Ascheim-Zondek test, which is ordinarily used as a test for early pregnancy. As we have said, this hormone is not demonstrable by any test now available in the blood of normally menstruating non-pregnant women. In these cases of primary ovarian failure, its presence is an indication of a compensatory overfunction of the anterior pituitary in an attempt to stimulate activity in the intrinsically inadequate ovaries. The blood sugar tolerance is lowered and the basal metabolic rate is also slightly lowered.

Thyroid deficiency is not an infrequent cause of uterine bleeding in the puberal or adolescent period. The milder forms show moderate manifestations of mental inactivity, headache, constipation, dry skin and obesity. The adiposity is more evenly distributed and does not show a tendency to localize in certain areas as in the anterior pituitary deficiency cases. The basal metabolic rate is often markedly lowered, but disturbance may

occur in patients showing only a slightly lowered rate or even in one showing a normal rate. If other physical evidences of thyroid deficiency are present, the careful administration of thyroid extract may be tried as both a diagnostic and a therapeutic measure. If no symptoms of thyroid excess develop, as noted by an increase in the pulse rate and nervous manifestations, the diagnosis of insufficient thyroid activity may be inferred and treatment should be carried out accordingly.

TREATMENT OF PUBERAL HEMORRHAGE

The treatment of functional puberal hemorrhage is first directed towards the immediate question of checking the hemorrhage. Frequently these girls become seriously depleted from the blood loss, which may have extended over periods of weeks or months. These cases formerly offered a serious problem, since the ordinary styptics and hemostatics, such as ergot, usually offer little, and as a rule only temporary, relief. Today we are much better equipped. In the anterior pituitary luteinizing hormone extracted from the urine of pregnant women, we have almost a specific for this type of bleeding. Two cubic centimeters, or in terms in which these products are standardized, 200 rat units, injected intramuscularly for two or three successive days, in most cases will cause an immediate cessation of bleeding. Occasionally one such dose is sufficient to get results.

This large dose of the hormone causes a rapid luteinization of the persistent follicles, the consequent cessation of their secretion, and the production of progestin which neutralizes the follicle hormone in the blood stream. To prevent recurrence of the hemorrhage the injections should be repeated two or three times a week in smaller doses of 100 rat units, until it is time for a menstrual period.

After the hemorrhage has been checked, a thorough study of the case should be made to determine, if possible, the type and underlying causes of the endocrinal disturbance. All factors which might inhibit glandular function should be eliminated if it is possible to do so. Focal infections, faulty diet, inadequate outdoor exercise and recreation, depressing nervous influences and constitutional disease must receive attention.

Osteopathic lesions in regions affecting the involved gland should receive particular attention. Bimanual pelvic manipulative treatment may be used both to stimulate better ovarian and uterine circulation in organs which are structurally defective and to facilitate the rupture of the cystic follicles. The latter requires repeated and rather firm bimanual manipulation of the ovaries themselves, while circulation is improved by gentle stretching of the broad ligaments. The bimanual manipulation should be given recto-abdominally in these young patients, since any vaginal treatment is usually painful both physically and psychically. The use of small doses of anterior pituitary hormone, 25-50 cubic centimeters, two or three times a week, may be used to stimulate follicle growth, but for this purpose it is not proving to be as successful as for checking hemorrhage.

X-RADIANCE—THYROID EXTRACT

The use of careful x-ray radiation, to the anterior pituitary lobe and ovaries simultaneously, is a measure as yet in the experimental stage. Some brilliant results have been recorded in cases where all other measures had failed. This type of treatment is attended with some risk. The degree of susceptibility to irradiation varies greatly in individuals, and a relatively small dose which may stimulate the ovaries to growth and activity in one patient may cause destruction of the follicles in another. It may be used with the least degree of risk in cases of complete amenorrhea, showing no theelin secretion in the blood; in ovaries showing such a degree of malfunction there is everything to be gained and nothing to be lost. The intra-uterine application of small doses of radium in cases of functional bleeding has a double-edged effect. While it undoubtedly stimulates the ovaries, it also produces fibrosis of the uterine blood vessels, a condition incompatible with subsequent normal function of the endometrium. It is therefore contraindicated in girls and women during the childbearing period, but as we shall show later, it is one of the most useful weapons at our command in menopause hemorrhage.

Thyroid extract is probably the only really potent endocrine preparation for stimulating ovarian function. It is almost a specific for those cases showing thyroid deficiency and may be used to advantage in many cases showing no marked lowering of the basal metabolic rate. A careful check on the pulse should be kept to avoid over dosage from the accumulative effect of this useful but dangerous drug.

FUNCTIONAL HEMORRHAGE IN MATURE WOMEN

The causes of uterine hemorrhage in the late adolescent and adult woman are more varied than in the younger girl. Local pelvic conditions, such as fibroids, displacements and pelvic inflammations, are more common at this time and must be eliminated before a diagnosis of functional hemorrhage is made.

The causes of functional bleeding in the adult are quite similar to those in the girl with anterior pituitary dysfunction as the most important. Thyroid hypofunction is not as frequent, but is sometimes the cause of a most persistent and exhausting type of hemorrhage. It is one of the most frequently overlooked conditions in this connection. Thyroid hyperfunction found in Graves' disease is more often the cause of amenorrhea than of excessive bleeding.

Two interesting cases of thyroid deficiency, associated with uterine hemorrhage, came to my attention in the Osteopathic College Clinic in Los Angeles. The first, an obese woman thirty-six years of age, came with a history of a practically constant uterine bleeding during a period of four years. The flow began in the intermenstrual period, within a few hours following an accident in which the patient sustained a severe nervous shock. It had since ceased for short periods only while she was using drugs for that purpose. She had gained over fifty pounds in weight during that time, and weighed 185 pounds when first seen. Her chief complaint, besides the hemorrhage was an increasing sense of weakness, but she did not complain of headache or dizziness. In spite of the long period of blood loss, a blood count showed a nearly normal red count and only slightly lowered hemoglobin content. She did not show much of the typical edema of the skin, dry hair, and mental sluggishness suggestive of typical myxedema, but the adiposity was characteristic of thyroid hypofunction, being well distributed. The basal metabolic rate was—24.

She was put under general osteopathic treatment, and thyroid extract was administered. It was started with one-half grain doses three times daily, and was later increased to three grains daily. There were no symptoms of overdosage. The uterine hemorrhage showed improvement almost immediately, and was entirely checked within a week. The absence of all pelvic findings in this case and the improvement under thyroid administration was sufficient evidence to establish the thyroid disturbance as the causative factor in the uterine bleeding. The patient unfortunately left the clinic after a few weeks and we lost track of her. It would have been interesting to learn whether or not the thyroid extract had to be continued.

A similar case was a woman thirty-seven years of age, who came to the clinic with a history, over a period of about two years, of profuse bleeding at her regular menstrual periods, accompanied by constipation and feeling of exhaustion. She had had no acute illness before these symptoms developed and they had become progressively worse. She gave a history of a gain in weight of approximately fifty pounds during that time.

She was of a typical myxodematous type, having the thick edematous skin of the face and neck, drooping eyelids, dry hair, slow pulse and lowered blood pressure. The mental reactions were somewhat sluggish. The basal metabolic rate was—37. With the exception of a fibroid growth the size of a walnut on the fundus, bimanual examination revealed normal pelvic organs.

In view of the evident thyroid deficiency, it was decided to try the use of thyroid medication before advising surgery for the uterine growth. She was put under general osteopathic treatment and thyroid medication. The dosage, at two grains three times daily, and later five grains daily, was continued over a period of nearly six months without evidence of overdosage.

There was moderate improvement in the first menstrual period and by the third period a normal flow was reported. It continued normal for the period of six

months she remained in the clinic. Her feelings of exhaustion and mental sluggishness were greatly improved and the blood pressure and pulse returned to normal. The results obtained without surgery indicated that the uterine fibroid was not responsible for the menorrhagia. We lost track of her two or three months after she left the clinic. It would have been interesting to learn whether the continued use of thyroid was necessary to prevent a return of symptoms.

CYSTIC OVARIES

A condition frequently found in the adult woman, and which causes a functional type of uterine bleeding, is a cystic ovary or ovaries caused by a thickening of the tunica albuginea or connective tissue coat of the ovary. This comes as the result of chronic inflammatory change. This thickening may follow infection of the ovary, especially the specific type, or may result from any chronic congestive state of the ovaries even in the absence of infection. The ovarian follicles cannot rupture through the thickened tunica and continue to function and to secrete follicular hormone. The result is a hyperplastic uterine endometrium similar to the condition produced by atretic follicles, caused by deficient pituitary function. Hemorrhage results and continues until an accidental ovulation with corpus luteum formation occurs, or the follicles are forced into the corpus luteum stage by artificial measures.

Extract of the anterior pituitary gland, by producing this latter condition will usually stop the bleeding temporarily. It does not, however, prevent a return in the ovary of the cystic condition. This type of cyst may sometimes be ruptured by repeated bimanual manipulation. Treatment of a depleting nature such as glycerine tampons, hot douches and pelvic diathermy will help to correct the inflammatory or congestive state, and tends to prevent the recurrence of the cystic follicles. All causes of ovarian congestion, such as uterine displacement, inflammation of the tubes, and uterine fibroids, must be removed if this is to be accomplished. Causes of purely functional congestion, such as heart and kidney disease, chronic constipation, poor posture and faulty sex hygiene also demand attention.

Cases not responding to conservative measures call for surgical intervention. Curettage, formerly so much used for endometrial hyperplasia, is not employed so much now, due to the fact that it is now known not to relieve the underlying pathology in the ovary. Results from this measure alone are therefore as a rule only temporary. In most cases, in fact, unless there is actual polypoid degeneration of the endometrium, the hyperplasia will correct itself if ovarian function is restored to normal. In cases which do not respond to conservative treatment, surgery is the last resort. Resection of the ovaries is preferable in women under forty whenever a sufficient amount of functioning tissue can be preserved to carry on endocrine activity in a fairly normal manner. The preservation of a small fragment of ovary is not advisable, as it is inadequate to maintain normal endocrine balance and will only cause a protracted period of menopausic symptoms.

The use of light doses of radium in women under forty years of age, for the purpose of producing temporary amenorrhea, is sometimes indicated in women with constitutional disease or much previous surgery, but there is always the possibility, even with careful dosage, that amenorrhea may be permanent. This type of treatment is particularly useful in those in whom, as the result of salpingectomy, an ovary has been left with an inadequate circulation and has become cystic, causing uterine hemorrhage.

UTERINE HEMORRHAGE IN MENOPAUSE

Uterine hemorrhage is one of the more common complications of the menopause and is often regarded too lightly by both the patient and her physician. Due to greatly increased incidence of malignancy in women past forty, there should be very little temporizing in the treatment of hemorrhage, until this possibility has been eliminated by biopsy and examination of tissue from both the cervix and endometrium.

True functional bleeding at this period has a definite etiology, the nature of which has not been well understood until rather recently. In practically all such cases, follicle cystosis or, more properly, atresia of the ovarian follicles can be demonstrated, which produces a condition of endometrial hyperplasia. While the ovarian and uterine pathology is rather similar to that found in puberal hemorrhage, the condition is not due to a lack of anterior pituitary secretion as it usually is in the latter, but rather to the fact that atrophic changes in the ovary render it incapable of responding to normal anterior pituitary stimulation. It has been demonstrated that in over 50 per cent of all such cases there is an actual increase in the pituitary hormone as demonstrated by the Ascheim-Zondek test, which is regarded as a compensatory reaction on the part of the gland to spur the lagging ovaries to increased effort.

From this it is evident that the use of the anterior pituitary sex hormone is not always indicated in menopausic bleeding, although its use will occasionally check the flow. The ordinary styptics such as ergot and hydrastrin are usually more successful, but their use is necessarily limited on account of their toxicity.

In radium we have a valuable agent for the control of menopausic hemorrhage, since its use at this time merely hastens the natural atrophic changes taking place in the uterus and ovaries. The mortality rate in the use of radium is zero, as compared to hysterectomy, and the morbidity, time and expense are greatly lessened. There is a tendency to a short period of rather severe menopausic symptoms following the use of radium, due to the rapid ovarian sclerosis, but it is usually much alleviated by the use of ovarian therapy, either the whole ovarian extract or the follicle hormone. On the whole the period of disability seems to be shorter than when surgery is resorted to.

Radium is indeed a life saver for women suffering from either menopausic functional bleeding or uterine malignancy, who, due to constitutional disease, are poor surgical risks.

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Diagnosis and Treatment

UNDERLYING CAUSES OF THYROID DYSFUNCTION*

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The purpose of this paper is not so much to present newly discovered causes of thyroid dysfunction, as to recall factors which are known to be instrumental in interfering with the normal size, consistency and colloid output of this highly important gland, and to emphasize those factors which seem to be most productive of derangement in specific function. As a starting point, we shall review

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briefly the anatomy of the gland as regards its arterial supply, venous and lymphatic drainage, and vasomotor control.

The blood supply comes from the superior thyroids, branches of the external carotids and from the inferior thyroids, branches of the thyroid axis of the subclavians, with the occasional occurrence of the thyroidea ima usually a branch of the innominate. These arteries are relatively large, and form a rich superficial plexus whose numerous branches pass along the interlobular septa to the follicles, where they break up into capillaries. The capillaries form a network around the individual follicles similar to those surrounding pulmonary alveoli. This generous arterial supply is important in etiology. The ultimate effect on interstitial and parenchymatous cellular activity, of even slight stimulation to the nerves controlling it, is correspondingly amplified, due to the greater opportunity for secretory exchange. This is true whether such stimulation is direct or through a reflex arc.

SYSTEMS OF SUPPLY AND DRAINAGE

The lymphatics begin as perifollicular lymph spaces; from these, plexuses follow the interlobular septa to form a superficial plexus from which the lymph passes in all directions. Its particular drainage, however, is upward to the deep cervical lymph glands and downward to the superior mediastinal lymph glands.

Venous drainage consists of numerous small veins which emerge from the organ to form a large plexus beneath the capsule, from which the blood escapes by three chief courses on each side. The superior thyroid veins are double, and follow the artery to open into the internal jugular. The middle thyroid vein passes from the side of the lobe into the internal jugular, anastomosing with the pharyngeal venous plexus. The inferior thyroid veins come from the deeper part of the organ and form a rich plexus in front of the trachea and drain into the left innominate.

The nerve supply to the gland is derived from the superior, middle and inferior cervical ganglia, and reaches the gland by way of branches passing along the corresponding thyroid arteries. The superior cervical ganglion is in close relation to the second and third cervical nerves, the middle, to the sixth cervical, and the inferior, to the seventh and eighth.

For the sake of clarity it is necessary to group the several types of simple goiter under one head, and then to consider separately the other dysfunction entities, which include cretinism, myxedema and toxic goiter. Since toxic hyperthyroidism, because of its frequency, severity and extensive manifestations, is productive of the greatest gross damage, we will deal with its etiology more in detail and will leave its consideration to the last.

"SIMPLE GOITER"

The term, "simple goiter", refers especially to that pathological condition in which the size, consistency, vascularity and cellular elements of the gland are changed, thus making the underlying causes for such dysfunction essentially physical. These causes include osteopathic structural lesions, and various physical situations which interfere with nervous control or vascular flow. Among the latter are causes which, by their nature or previous occurrence, are no longer amenable to treatment. Hence they need only to be mentioned. Trauma is a typical example of this sort of etiological factor. Exposure to cold, indiscreet manipulation of the gland, use of water with a low iodine content, but with a rich calcium or magnesium content and a high degree of radioactivity, overuse of the voice in vocal training—these are other factors.

Physiological influences from related endocrine glands which have been shown to initiate tissue change in the thyroid include sexual excess in the male, menstruation, pregnancy, childbirth, lactation, and the menopause. Parenthetically, we will mention here that when any marked change occurs in the thyroid during the climacteric, it should be remembered that it may be malignant. These and all other causes of the simple type of goiter may likewise be included among those occurrences which predispose to hypersecretion, and will not be repeated in connection with that condition unless worthy of special emphasis.

The arrangement of the nerve supply, in relation to other body structures, is of great significance when reasons for dysfunction are being sought. It constitutes the most direct and most rapidly transmissible influence on secretory cells. Clinical experience has shown that the more common lesions which affect the thyroid in this manner are those which set up abnormal stimulation of cervical sympathetics through cervical ganglia, and thence to thyroid parenchyma. The effect of such abnormal innervation is the distention of the alveoli and formation of new ones, the dilatation of blood vessels, and, usually, degeneration of the colloid without necessarily altering the quality or rate of secretion. Lesions which may involve the nerve and blood supply to the gland extend from the occiput to the fifth dorsal segment and include the corresponding ribs, as well as the hyoid, mandible and clavicle. However, those most responsible for definite alteration in vascular control or nutrition are: Subluxation of the head of the first rib upward and backward and clavicular lesions by direct pressure on the three thyroid veins and on the inferior and stellate ganglia; subluxations of the cervical vertebrae which effect the second, third, sixth, seventh, and eighth cervical nerves and in turn the cervical ganglia.

CRETINISM AND MYXEDEMA

The condition known as cretinism can be dismissed by restricting the term to congenital thyroid deficiency from hereditary influence. Myxedema, also a hyposecretion disorder, will be treated very briefly on account of its low incidence. The same lesions of innervation which are responsible for other thyroid pathology are also factors here. Surgical removal of the gland, hereditary tendency, overwork, anxiety, poor nutrition, and low grade conditions that lessen tissue resistance are among the causes.

TOXIC HYPERTHYROIDISM

Among the various factors producing hypersecretion, or so-called toxic hyperthyroidism, there are some which stand out. They include infectious foci, especially those of the head and neck; nervous instability induced by prolonged mental strain or excessive nervous shock; functional change; organic disease in the other endocrinal glands; and structural osteopathic lesions.

Infectious foci affect the thyroid by throwing bacterial toxins into the blood stream. These damage the thyroid particularly because of its great vascularity.

General nervous instability produces a hyperstimulation of the sympathetics which, since it is general, includes cervical ganglia and so produces a vasodilator type of vasomotor ataxia in the gland itself.

Organic disease in the other glands of internal secretion causes hypersecretion of the thyroid by the altered quality or quantity of the various substances which are present in the blood stream. The definite effect of each is not as yet clearly understood, but it has been demonstrated by clinical and laboratory tests that the endocrines furnish chemical substances of two main types, sympatheticotonic and vagotonic. Those which seem to stimulate the sympathetic system are the thyroid, adrenals, ovaries and testes, and the pituitary; while in the latter group are the pancreas, parathyroids, corpora lutea, and possibly the liver.

Physiologists have shown in laboratory experiments that artificial stimulation of a single cervical sympathetic nerve has of itself induced a marked condition of hyperthyroidism, all other possible causes being eliminated in the tests. Treves says that stimulation of the laryngeal nerves has also produced a definite hyperthyroidism. Lesions of the second and third, and third and fourth dorsal segments cause local irritation and congestion, and produce a constant stimulus which, in turn, constitutes increased nervous activity which is translated into increased glandular activity through its sympathetic nerve connections. These laboratory tests have been substantiated by clinical cases in which correction of disturbed nerve relations has resulted in amelioration of the toxic symptoms or in complete cure.

AS AN AFTERMATH

So that we may not deny the possibility of thyroid pathology in a doubtful case without careful investigation, we might point out that this gland may be affected secondarily by toxins left in the blood as an aftermath of the following list of systemic infections: Rheumatism, typhoid, puerperal infections, enteritis, diphtheria, influenza, common colds, measles, small pox, general septicemia, intestinal stasis with autotoxemia, tuberculosis, and syphilis.

There is no virtue in recognizing etiological factors in this or any other disease condition unless it enables us to do something about it. So it is more important to concentrate on causes which are amenable to treatment. In the face of such a multiplicity of possible causes it would seem that treatment would have to include in many of these cases correction of the entire make-up of the individual. It would have to correct structural abnormalities, produce perfect elimination, rectify or rationalize all environmental lesions, and normalize as nearly as possible the other endocrinal glands.

Needless to say, successful handling of toxic hyperthyroidism demands careful and painstaking attention to every possible body lesion, no matter how seemingly insignificant or remote. Although surgery should not be put off too long, we should not be satisfied to resort to it until we have eliminated all body lesions.

Foot Section

H. E. CLYBOURNE
Chairman
Columbus, Ohio

SHOES AS AN AID TO HEALTH

By MR. GEORGE E. MUSEBECK

(The following has been adapted from an article in a recent issue of The Boot and Shoe Recorder, *written by Mr. George E. Musebeck, a prominent shoe manufacturer, and is offered here because it sounds a note of hope for the shoes of the future.—Editor.)*

Shoe manufacturers are waking up to the fact that shoes must be more than just shoes, for the simple reason that up to the present time they have been much less than shoes. The astounding fact that nine out of every ten persons have some form of foot trouble is jolting shoe makers into thinking about something besides style. That shoes must play at least some part in all this foot trouble is proved by the fact that 99 out of every 100 babies are born with perfect feet.

At least a partial solution of the problem will come when the average shoe dealer knows as much about the human foot as the average mechanic knows about an automobile. When that time comes, there will be fewer "style" shoes and more "health" shoes. We grant, of course, that style must have its place in the making of shoes, but there need be no fight between style and foot health. If shoe manufacturers did a good job, the public would become educated to shoe styles that are healthful.

We are not saying that this way would be without difficulties. A conscientious dealer, who knew feet and their needs, might try to supply his trade with a shoe that was correct from the health angle; but which made no attempt to follow the fads in its styles. His efforts would be misunderstood. He would be classed as a fanatic. He would still have to deal with vanity. Yet he could go far with the people who are really wanting the shoes that are best for their feet. And, in time, he could educate the others into seeing that a shoe need not be homely or out of style to be good for the foot.

The depression, as far as some of the progressive shoe manufacturers have been concerned, has offered a golden opportunity. The lag in business activity has given them time for study and research into matters of foot health and shoes. They have brought to light some startling facts. From case after case of actual experience it has been proved that shoes have a direct relationship to health. People have been made ill by wearing incorrect shoes; they have been helped by wearing correct shoes.

The first business of shoes is to protect and support the feet so that they can function normally. They must assist and not interfere with the rest of the body. This is what the shoe manufacturer of the future must first consider. Style must be secondary.

No sane shoe maker, however, is going to advertise his shoes as "cure-alls." He is not going to try to take the place of a physician. He is, rather, going to work hand in hand with doctors. Thus he will attain the ultimate goal of real health in shoes. His permanent success will lie in constant study and research—in finding the way to give his customers what is best for them, and in making them like it!

American College of Osteopathic Surgeons

A. C. JOHNSON
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CESAREAN SECTION*

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Due to the improvement of surgical asepsis and surgical technic during the last two decades cesarean section has been performed with such growing frequency that in recent years it has possibly been done too frequently and for insufficient reason. It requires a nicety of judgment and a reserved enthusiasm to decide between abdominal and vaginal delivery.

Previous to 1882, when Sanger recommended an efficient uterine suture, practically the only indications for cesarean section were a contracted pelvis or a dead mother and a live baby. Since that time, with a decrease in mortality, the indications have steadily increased. Now it is said that there are physicians who have proposed cesarean section to save a woman the pain of normal labor.

When we speak of our indications for doing a certain obstetric operation, we mean our reasons for doing that particular operation to the exclusion of all others. To be sound, these reasons must be based upon a thorough knowledge of all the operations which might be applied to the given case. This knowledge should not only be technical, but should also include a familiarity with the results; I mean here maternal and fetal morbidity and mortality.

CONTRAINDICATIONS

An understanding of the contraindications is also important. For example, cesarean section for a contracted pelvis whose true conjugate is 8 cm., to deliver a five pound premature baby, is distinctly contraindicated. Even though the pelvis is contracted, the baby is small enough to be delivered by other means. In any obstetrical operation, a consideration of contraindications is as imperative as that of indications; there are two lives to consider, the maternal and the fetal, and in practically no obstetrical operation are the "life and death chances" of both equal.

The contracted pelvis whose true conjugate is 5 cm. or less is at present accepted as an absolute indication for abdominal cesarean section, since even after craniotomy it may be impossible to deliver the fetus. In a pelvis whose true conjugate is between 7.5 cm. and 5 cm. the indication is theoretically relative, for though a normal full term child cannot be delivered spontaneously, it is sometimes possible to empty the uterus by other means than cesarean section.

In the border line pelvis, wherein the true conjugate is between 7.5 cm. and 9 cm., the possibility of spontaneous delivery depends almost entirely on the size of the head and the quality of the pains. Therefore, a primipara with a border line pelvis and an average sized baby is justified in having a test of labor.

One should bear in mind that disproportion is often made the scapegoat of cases of non-engagement which are, in reality, due to insufficient flexion. I know of more than one case in which the patient was prepared for operation and escaped section only when it was discovered at the last moment that the baby's head had entered the pelvis. Experiences such as these are salutary inasmuch as they impress upon us the value of watchful and intelligent waiting.

If the head engages, labor may proceed to spontaneous delivery or may be terminated by forceps or version. The patient should be closely watched and extreme care used in determining the progress of labor; internal examination should be made per rectum rather than per vaginam. If the head fails to engage after a reasonable duration of good pains, four to six hours, cesarean section should be done in preference to other means such as high forceps or version.

In the case of a multiparous patient who has a border line pelvis, and a history of previous instrumental deliveries with dead babies, it is justifiable to perform a cesarean section either when labor begins or before it is well established.

*Delivered at the 37th A.O.A. Convention, Milwaukee, 1933.

PELVIC DEFORMITY

A deformed pelvis has long been regarded as an indication for cesarean section. Whether or not this is an indication depends upon the variety and extent of deformity. The most frequent and troublesome deformity is the funnel shaped pelvis. This is true because it so closely approaches normal. The funnel shaped pelvis is one whose measurements at the brim are normal, but whose outlet transversely and anteroposteriorly is smaller than normal.

A transverse diameter of 7 cm. or less was once considered a positive indication for cesarean section. In 1906, however, Klein showed that this does not always hold true, and that a spontaneous delivery depends more on the posterior sagittal diameter—the distance from the transverse diameter to the tip of the sacrum—than on the transverse diameter.

A short transverse diameter prevents the head from closely approximating the pelvic arch. In this event, delivery is possible only if the posterior sagittal diameter, or the distance from the transverse diameter to the tip of the sacrum, is adequate to allow the passage of the child's head. For instance, a woman whose pelvis measures 6.5 cm. transversely and 7 cm. posterior sagittally, might require cesarean section, while one whose transverse diameter was 5.5 cm., but whose posterior sagittal measurement was 10 cm. or more, might be delivered naturally.

Dystocia due to disproportion is usually thought of in terms of the degree of pelvic contraction, without regard to the relative size of the child's head. Sometimes the head of large overtime babies is so firmly ossified and so large that moulding and engagement will not take place even in a pelvis whose measurements are normal. In these cases cesarean section is indicated.

ECLAMPSIA

For the past few years some obstetricians have been quite enthusiastic in their advocacy of cesarean section in cases of eclampsia, in both primiparae and multiparae. Although this is not a dissertation on eclampsia, I should like to advance the opinion that in the majority of instances eclampsia is preventable. If more women were under proper care and close observation, the development of this grave condition would be far less frequent than it is now.

In my opinion, the advocacy of immediate cesarean section for all cases of eclamptic convulsions, either early in labor or before it starts, should be limited. The eclamptic woman should be delivered not necessarily at once, but within a reasonable time. Especially is this true in a multipara. If, in a multipara, nature is given a chance, labor will almost invariably begin after a few convulsions. The cervix will begin to dilate and the case will proceed to rapid spontaneous delivery. If there is an aggravation of symptoms and occasion to hurry, the cervix will soon permit manual dilatation, and a version will effect delivery.

In primiparae, however, this sequence cannot be expected. Even though labor may start, it will be much slower. Some doctors still use a rubber bag (metreurynter), to hasten dilatation, but this procedure usually requires from eight to ten hours. During this time the patient is in grave danger. She is suddenly overwhelmed by a profound toxemia; the convulsions are coming at shorter intervals and are lasting longer. Before delivery takes place she may succumb to cerebral hemorrhage or toxemia. In this type of case, it is not safe to temporize, as one might in multiparae.

Cesarean section answers the requirements for safe immediate delivery better than any other operative procedure, though the profound toxemia makes the case very serious and keeps the mortality percentage high.

PLACENTA PRAEVIA

The increasing tendency to perform abdominal cesarean section for placenta praevia, regardless of the variety, is hardly justifiable. Some cases of marginal placenta praevia may need no treatment at all. The presenting part may exert sufficient pressure to control the hemorrhage; if it does not, a bag or Braxton Hicks version, may be used to control the hemorrhage until sufficient dilatation can be obtained for delivery. However this may be, I am of the opinion that it is not the location of the placenta in the lower uterine segment which counts so much as it is the amount of hemorrhage and the condition of the cervical os. If the hemorrhage is severe and the os is closed, the safer procedure is to perform a section without delay. In a primipara, at or near term, where a diagnosis of placenta praevia has been made, even in cases of moderate or slight hemorrhage, it is in the best interest of the mother and the child to deliver by means of a section.

One of the most serious complications which may develop in the pregnant woman is the premature separation of a normally located placenta, due to hemorrhage. The visible type, where the hemorrhage pours out of the uterus, need not be considered in detail. The necessity for prompt energetic measures is evident. The concealed type, however, in which the hemorrhage is imprisoned in the uterus, is one of the most baffling conditions in obstetrics. The mortality rate is higher than in any other obstetrical calamity, unless in the case of a ruptured uterus.

Whenever a woman gives the severe constitutional symptoms of a suddenly rapid, weak or thready pulse, pallor and cold perspiration, moderate thirst or, possibly, air hunger, rapidly increasing weakness and a tonically contracted uterus and a large boggy mass occupying the fundus—she should have an immediate abdominal cesarean section.

Some obstetricians may say that such symptoms might also mean a ruptured uterus. They are correct, but the distinction is of little practical consequence, since in either case an immediate abdominal cesarean section is indicated. In these cases, our one present chance to lower the mortality rate lies in an early recognition of the pathology and an immediate operation.

CARCINOMA OF THE CERVIX

Carcinoma of the cervix interferes with the process of dilatation and labor to such an extent that an abdominal cesarean section should be performed before labor begins. If possible, it should be followed by a hysterectomy.

Mechanical obstruction due to pelvic tumors which can be neither replaced nor displaced under anesthesia, may render a cesarean section necessary. The most common of these tumors are fibroids of the uterus and cysts of the ovary. It is well to remember that a pedunculated tumor which is prolapsed in front of the presenting part and which seems to present an impassable obstacle to delivery, may, under the influence of uterine contractions, be drawn up above the pelvic brim before engagement of the head takes place. This point may well be considered before performing cesarean section upon this type of case; but, should obstruction persist, section should not be unduly delayed.

Certain cardiac conditions require cesarean section. Occasionally one encounters, even as early as the fifth or sixth month of pregnancy, cases of beginning myocardial failure. It is evidenced by fibrillation, dyspnea, and edema. Where rest in bed and supportive treatment fail to bring about any marked improvement, termination of pregnancy by the abdominal route is at times preferable to the induction of labor in the hope of delivery by the natural channel. A prolonged labor may be the straw that breaks the camel's back.

CARDIAC COMPLICATIONS

Women with myocardial damage, in whom the cardiac response to exertion is poor should be advised against pregnancy. Unfortunately, physicians are not often consulted by these cardiac cases until after conception has taken place. Then it is a matter of watch, hope, and pray.

The idea, "once a cesarean section, always a cesarean section," is not, I believe, absolutely true. In the majority of cases, the uterine scar will not rupture during later pregnancies. There is, however, the possibility that it may rupture. The patient should be informed of this possibility at the time of the operation. She should be told, too, that if future pregnancies are desired she should put herself under close supervision, particularly during the last trimester, and that during labor it is imperative that she be in a hospital.

Cesarean section is not a difficult operation. It is perfectly simple for one who practices abdominal surgery. The important part is not the technic of the operation, but the accuracy of the diagnosis. The important thing is to know when cesarean section is properly and justifiably indicated.

American Osteopathic Society of Proctology

FRANK D. STANTON
President
Boston

EMERGENCY INFLATION BAG FOR HEMORRHAGE

R. R. NORWOOD, D.O.
Mineral Wells, Texas

I wish to show you how the proctologist may overcome hemorrhage by assembling some simple things in his office. They are:

1. A surgeon's glove (preferably new).
2. A rubber urethral catheter large enough to receive an ordinary metal ointment tip, which is included in all rectal ointment tubes.
3. A discarded metal tip from a rectal ointment tube.
4. Strong cotton string (1 yard).

Grasp the glove with two hands, one hand holding the palm and wrist of the glove, the other holding the fingers just below the thumb. With the hands about an inch apart, stretch the glove severely, as if you were endeavoring to pull the fingers from the wrist band. Have your assistant tie the cotton string smoothly around this stretched part, winding it around two or three times while it is being stretched. Next, with scissors, cut off the fingers, leaving a stub of about one-quarter of an inch. Now turn the glove inside out so that the stub will be on the inside. Thus you have made, with the palm of glove and wristband, an elastic rubber bag.

Prepare the discarded metal tip of the rectal ointment tube as follows: Use a blunt instrument as a reamer to open the small tip to the size of the internal diameter of tube, and cut off the large screw end of the discarded tip. This will give you a small metal tube an inch and a half or two inches long. Pass this quickly down the catheter, which must be large enough to receive the tube, to about five inches from the tip of the catheter. Then insert the catheter about five inches into the rubber bag. Grasp the wristband of the glove around the catheter in which the metal tubing has been placed. Holding it closely, have a second string wrapped securely four or five times around the glove about one inch from the distal end of the wristband and tied securely. Include the glove, catheter and tube in this tie. Leave the ends of the string five or six inches long.

Now you have a securely constructed bag with an opening through the catheter. When it is collapsed you may insert it easily in the anal canal. When you have inserted it the bag is in the rectum; you may use a ten or twenty c. c. syringe to inflate the bag with either air, ice water, or oil; it may be filled to the capacity of 18 or 20 ounces. You can clamp the catheter temporarily with a strong hemostat. Insert the glove only to the tied end of the wristband, so that a portion of it is protruding from the anal canal. With this portion of the glove and the string, you may make great pressure with the distended bag against the internal sphincter muscle. In other words, you can make efforts at pulling the bag out, thus making great pressure against the first inch of space just above the pectinate line—the region in which bleeding is most prevalent. Then with a roll of gauze against the rugae, at right angles to the anal canal, fasten securely the two ends of the string which are tied to the wristband of the glove and maintain this pressure against the lower part of the ampulla.

The patient and doctor will experience a great deal more comfort in removing this pack than if it were made of cotton or gauze.

But more curious still in the elaborate animal forms is the vast importance to existence of minute quantities of other elements or substances. Three grams of iron permit the human being to breathe and live. One-hundredth of this amount of iodine is necessary for continued existence. Fluorine, silicon, manganese, zinc, copper, arsenic, cobalt, aluminum, and even lead, are present in traces in the bodies of those living under modern conditions of civilization. As yet, however, the function of these last mentioned elements is undetermined.—*A Text Book of Pathology. Delafield & Prudden.*

Book Notices

THE ENLARGED PROSTATE AND PROSTATIC OBSTRUCTION. By Kenneth M. Walker, F.R.C.S., M.A., M.B., B.C. Cloth. Pp. 223. Second Edition. Price, $4.25. Oxford University Press, 114 Fifth Ave., New York City, 1933.

This edition follows the first after an interval of ten years and the chief changes are in those parts devoted to treatment. New chapters relate to malignant changes in the prostate and to the mechanism of obstruction. Entire chapters are given to suprapubic prostatectomy, perineal prostatectomy, and periurethral operations; also to anesthesia.

DIET IN SINUS INFECTIONS AND COLDS. By Egon V. Ullmann, M.D. Recipes and Menus by Elza Mez. Cloth. Pp. 166. Price, $2.00. The Macmillan Company, 66 Fifth Ave., New York City, 1933.

This is a small and useable book stressing the importance of a diet calculated to counteract acidosis, to increase the effect of calcium in the system and to prevent an eventual lack of vitamins. The importance of restricting salt is also explained. The value of fresh food only and of alkaline foods with the reduction of animal proteins and the restriction of carbohydrates is recommended. There is a good bibliography and an appendix of recipes and menus which should be of considerable value.

FOOD IN HEALTH AND DISEASE: Preparation, Physiological Action and Therapeutic Value. By Katherine Mitchell Thoma, B.A. Cloth. Pp. 370. Price, $2.75. F. A. Davis Co., 1914 Cherry St., Philadelphia, 1933.

The author is Director of Dietetics at the Michael Reese Hospital, Chicago, where the principles set forth in this book have for five years formed the basis of the method developed for teaching student nurses nutrition and diet in disease. It is emphasized that there are certain unchanging laws of nutrition and certain food requirements of the body which must be met in every adequate, normal diet. Therapeutic diets are shown as variants in which none of the essential nutrients are ignored.

Part one of this textbook takes up the various food elements and their value. From this foundation the author goes to hospital standard diets, high caloric diets, diets in obesity, in gastro-intestinal disturbances, in disturbances of the digestive system, in renal and cardiac conditions, in diabetes mellitus, in epilepsy, in gout, in arthritis, and food allergy. A special chapter is devoted to therapeutic diets as a variation of the normal diet. In part three laboratory outlines in preliminary dietetics and in therapeutic diets are taken up.

LIFE-GIVING LIGHT. By Charles Sheard, Ph.D., Sc.D. Cloth. Pp. 174. Price, $1.00. The Williams & Wilkins Company, Mt. Royal and Guilford Aves., Baltimore, 1933.

This is one of the series of little books by outstanding authorities arranged for by A Century of Progress. Naturally it is not intended as a textbook, but rather as a popular discussion including the biologic and physiologic reactions of animal and plant substances to light. There are included also the history of artificial illumination, the elements of the light spectrum, measurements of light energy, the storing of such energy in living tissues, and so on.

THE HISTORY AND EPIDEMIOLOGY OF SYPHILIS. By Wm. Allen Pusey, A.M., M.D., LL.D. Cloth. Pp. 113. Price, $2.00. Charles C. Thomas, 220 E. Monroe St., Springfield, Ill., 1933.

This book consists of three lectures given under the Adolph Gehrmann Fund at the University of Illinois. The first lecture, on the beginning of syphilis, shows the author's conviction that the disease was imported to Europe from the West Indies by the sailors of Columbus. The second chapter covers the development of knowledge relating to syphilis during the next three hundred years. The third chapter is on the epidemiology of syphilis. Dr. Pusey expresses the opinion that 5 per cent of the entire population is a fair estimate of the prevalence of syphilis in Great Britain and this country. The various methods of handling the disease are discussed and he looks with an optimistic eye on the chances for control of the condition.

LIGHT THERAPY. By Frank Hammond Krusen, M.D. Foreword by John A. Kolmer, M.D., Ph.D., D.Sc., LL.D. Cloth. Pp. 186, with 33 illustrations. Price, $3.50. Paul B. Hoeber, Inc., 76 Fifth Ave., New York City, 1933.

The author is well qualified to present the facts which are known on the application of light in the treatment of disease and frank to admit the limitations of this knowledge. He begins with the physics and sources of therapeutic light, emphasizes the need for a more careful selection of therapeutic rays, discusses the physiological effect and goes into technic and forms of administration of light rays. Contraindications, dangers, and limitations also are well presented.

HOLT'S DISEASES OF INFANCY AND CHILDHOOD: A Textbook for the Use of Students and Practitioners. By the Late L. Emmett Holt, M.D., and John Howland, M.D. Revised by L. Emmett Holt, Jr., M.D., Associate Professor of Pediatrics at Johns Hopkins University, and Rustin McIntosh, M.D., Carpentier Professor of Diseases of Children at Columbia University. Cloth. Pp. 1240. Tenth Edition. Price, $10.00. D. Appleton-Century Company, Inc., 35 W. 32nd St., New York City, 1933.

This tenth edition of what has long been a standard text comes nearer being a "system" than a textbook since it includes the writings of many contributors. The man who first brought out the work has died, as has also his successor, but those who followed them have maintained the high standing which has marked the work throughout its history. Many sections in this edition have been completely rewritten, including those on nutrition and nutritional disorders, the deficiency diseases, diseases of the blood and allergic diseases. Many new sections also have been added.

DIAGNOSIS AND TREATMENT OF POSTURAL DEFECTS. By Winthrop Morgan Phelps, B.S., M.D., M.A., F.A.C.S., Professor of Orthopedic Surgery at Yale University, and Robert J. H. Kiphuth, Assistant Professor of Physical Education, Yale University. Cloth. Pp. 180. Price, $4.00. Charles C. Thomas, 220 E. Monroe St., Springfield, Ill., 1932.

This book is the outgrowth of a study of the male students in four institutions, including Yale University, over a period of four years. Evolutionary and environmental influences on posture are taken up. Normal posture is studied (defined as the average of a large number of postural examinations under the same conditions). Body mechanics is studied from the standpoint of the individual joint. The mechanical influence of one joint upon another is taken up and the effect on the posture of the whole body when individual joint mechanics vary. There is a complete chapter on corrective exercises and the book is well illustrated with photographs, diagrams and anatomical sketches.

MENTAL DEFICIENCY DUE TO BIRTH INJURIES. By Edgar A. Doll, Ph.D., Winthrop M. Phelps, M.D., and Ruth Taylor Melcher, M.A. Cloth. Pp. 289. Price, $4.50. The Macmillan Company, 66 Fifth Ave., New York City, 1932.

Twelve subjects were chosen out of an institution for mentally deficient, having a population of some 500. The condition of these twelve was believed due to birth injuries. Intelligence tests and other studies were made; investigations were instituted as to whether the apparent mental retardation was in part at least due to muscle and speech difficulties; the possible mental and physical benefit to be expected from physical therapy was studied, and some theoretic implications were formulated even though on the basis of such a small number of cases and a comparatively short period of time. It is recognized by the writers that danger of birth injury is present not only in severe, prolonged, and instrumental delivery, but also in births which are apparently normal. The study should prove of considerable interest to osteopathic physicians.

PEDIATRICS. By Henry Dwight Chapin, M.A., M.D., and Lawrence T. Royster, M.D. Cloth. Pp. 775. Seventh Edition. Price, $7.00. William Wood & Co., Mt. Royal and Guilford Ave., Baltimore, 1933.

This book went through six editions as "Diseases of Infants and Children". The new seventh edition is completely reset and enlarged by a hundred pages. New matter included deals with acidosis, anemia, anhydremia, acute bronchitis, acute glandular fever, acute rhinopharyngitis, acute carditis, acute nephritis, acute otitis media, gastrointestinal disturbances, jaundice, Hodgkin's disease, diabetes mellitus, poliomyelitis, empyema, malnutrition, inanition, undernutrition, rheumatic fever, undulant fever and undesirable habits. There are entirely new chapters on "Growth and Development" and on "The Appraisal of the Child", and "Food Elements, Their Digestion and Metabolism".

FRONTIERS OF MEDICINE. By Morris Fishbein, M.D. Cloth. Pp. 207. Price, $1.00. William & Wilkins Co., Mt. Royal and Guilford Aves., Baltimore, 1933.

A Century of Progress arranged for the publication of a series of small books by well known writers on the fundamental sciences and it was natural that they should ask the editor of *The Journal A.M.A.* to tell the story of the progress of medicine. He told it in a characteristic, readable way. Characteristic, too, is the crudity of his humor, as for instance when he says that in ancient times "the art of trephining had been developed in order to permit the demon of illness to escape from the skull. By such means it was hoped to heal epilepsy, called the falling sickness, and migraine. In many a case, no doubt, a cure followed the trephining operation, but the cure was due to the fact that life itself had departed because of the crude forms of primitive surgery; like the modern cynical estimate of many a surgeon, 'The operation was a success but the patient died'."

BONE GROWTH IN HEALTH AND DISEASE: The Biological Principles Underlying the Clinical, Radiological, and Historical Diagnosis of Perversions of Growth and Disease in the Skeleton. By H. A. Harris, D.Sc. (Lond.), M.B., B.S. (Lond.), B.Sc. (Wales), M.R.C.S., M.R.C.P. Cloth. Pp. 248, with 201 illustrations. Price, $10.50. Oxford University Press, 114 Fifth Ave., New York City, 1933.

This is a unique and interesting book by an authority who has written on this question in leading British periodicals. He has spent ten years investigating the subject, during which time he has had free access to clinical cases and plenty of experimental and autopsy material.

He gives the results of study of arrested growth in diseased and in experimental animals; the application of the results of this study to the elucidation of clinical facts in the diseases of children and of animals, and recent investigations, incorporated, incomplete though they are, by reason of their value as a reflection of the change in outlook. There are splendid pictures, an interesting bibliography, and good indexes of authors and of subjects.

OPERATIVE SURGERY COVERING THE OPERATIVE TECHNIC INVOLVED IN THE OPERATIONS OF GENERAL AND SPECIAL SURGERY. Vol. VII. By Warren Stone Bickham, M.D., and Phar. M. (Tulane), M.D., (Columbia), F.A.C.S., and Calvin Mason Smyth, Jr., B.S., M.D., F.A.C.S. Cloth. Pp. 849, with 765 illustrations. W. B. Saunders, W. Washington Square, Philadelphia, 1933.

This volume supplements and completes the first six volumes of the set, published eight years before. It attempts to bring the work up to date by adding to each section those operative procedures which have become established during these years of change and progress. The opening chapters deal with anesthesia, giving special attention to paravertebral, splanchinc and spinal anesthesia, to the rectal administration of ether and oil and to ethylene gas and its administration. Many new operative procedures are described, and a few older ones which were omitted from previous volumes. There is an index to this volume and a general index to the entire work.

HOW TO BUDGET HEALTH. Guilds for Doctors and Patients. By Evans Clark. Cloth. Pp. 328. Price, $4.00. Harper & Brothers, 49 E. 33rd St., New York City, 1933.

Mr. Evans Clark is Director of the Twentieth Century Fund, Inc., which helped both to organize and to finance the Committee on the Costs of Medical Care. He has written on other problems of finance and budgeting and in this book has undertaken to outline a plan somewhat in keeping with the suggestions of the majority report of the Committee on the Costs of Medical Care. His plan looks to an elaborate organization of group practice and of public health work with payments made on the insurance plan. His chapter on group practice reviews many clinics, industrial services, university services, labor union clinics, and benefit associations. Medical guilds are discussed from the points of view of legality, membership, organization, finance and relations to hospitals. Prominent physicians are quoted both in favor of and in opposition to the plan and the attitude of the public also is deduced from the returns received from 1,500 questionnaires.

Current Medical Literature

Abstracted by R. E. Duffell, D.O.

The Barbiturates and Other Hypnotics in Labor

Various drugs to relieve the pains of labor have been studied clinically by Frederick C. Irving, Saul Berman and H. Bristol Nelson at the Boston Lying-in Hospital. Eight hundred sixty patients were studied and eight types of anesthesia were used. These were pantopon and scopolamine, pantopon and rectal ether, pernoctun, sodium amytal and scopolamine, pentobarbital and scopolamine, sodium amytal and rectal ether, pentobarbital and rectal ether, and pentobarbital and paraldehyde.

It was the aim of the investigators to produce complete amnesia from the time the drugs were first administered until the patient awoke in bed with no memory of her labor.

The results of their investigations are published in *Surgery, Gynecology and Obstetrics,* 1934 (Jan.) 48:1-11. The 860 patients were divided into seven groups of 100 each and one group of 160, in which sodium amytal and scopolamine was used.

The use of pantopon (a preparation of opium less toxic to the fetus in utero than morphine) and scopolamine commonly known as "twilight sleep" in combination was found not to be a satisfactory hypnotic. Only 34 per cent of the patients had no memory of their labor; only 33 per cent of the infants born breathed immediately after birth; there was a prolongation of labor in primiparae; operative incidence was high; and the incidence of blood lost was the highest encountered in the study, being 25 per cent.

The most satisfactory anesthetic was found to be a combination of pentobarbital and scopolamine. It produced 86 per cent complete amnesia, 63 per cent of the infants breathed immediately after birth, and operative incidence was low.

The other combinations of anesthetics either failed to produce complete amnesia, caused excessive restlessness or had a marked effect in delaying the initial respirations of the infant.

The authors concluded that pantopon, morphine or any of its derivatives should not be used during labor. They also concluded that "all methods used delayed the initial respirations of the infants to some extent, since a control series of cases in which delivery was effected without any anesthetic showed only 1.9 per cent of infants who did not breathe immediately at birth."

The standard method which is now being used at the Boston Lying-in Hospital is pentobarbital and scopolamine. "Its sole objection," it is claimed, "is the fairly high percentage of restlessness,which we control by the supplementary instillation of rectal ether."

The Aseptic Peritoneal Cavity—A Misnomer

It has long been taught that the peritoneal cavity in health is sterile. In *Surgery, Gynecology and Obstetrics* for December, 1933, 57:752-760, Kingsley Roberts, William Warner Johnson and Helen Sue Bruckner, investigators in the Research Department of the Surgical Service of the Fifth Avenue Hospital, New York, outline their experiments over a period of three years which lead them to believe that there is no such thing as intraperitoneal asepsis.

In making these experiments they eliminated the possibility of contamination by making cultures of (1) bacteria of the air in the operating room, (2) bacteria of the skin of the patient to be operated upon, (3) bacteria of the deeper skin layers, and (4) bacteria of the peritoneal cavity, in cases both with and without intra-abdominal inflammatory reaction.

Careful bacteriologic technic included the use of sterilized and autoclaved swabs and test tubes. The technician was scrubbed, gowned and gloved as for an operation, and the cultures, when from the peritoneal fluid, were taken as soon as the peritoneum was incised. Cultures obtained from the serosa or inflamed organs were taken as soon as the organ was identified.

The results of the experiments were as follows:—

(1) Bacteria from the air.—Over 90 per cent were found to be of the micrococceæ tribe (micrococcus, staphylococcus, sarcina). Only 0.6 per cent were streptococci.

(2) Bacteria from the unprepared skin surface.—The micrococceæ amounted to 60.8 per cent of the total; the streptococci, 8.6 per cent; but there was a notable increase in anaerobic spore bearing bacilli, 21.7 per cent.

(3) Bacteria from the prepared abdominal skin.—In preparing the skin, two methods were tried: (a) Application of 2 per cent iodine in alcohol after cleansing the skin with ether, and (b) Application of 5 per cent methylene blue and 5 per cent gentian violet in 50 per cent alcohol, after green soap cleansing the night before operation. Skin scrapings from the abdomen as prepared in (a) were found to develop positive cultures; while those from (b) were negative.

(4) Bacteria from the deep skin layers—To obtain uncontaminated samples of the deeper layers down to the serous cavity, a solution of methylene blue and gentian violet was used to sterilize the skin. Scrapings from the knife blade of these deeper structures were found to develop the following cultures: 56.3 per cent micrococceæ; streptococci, 10.6 per cent; anaerobic spore bearing rods, 8.5 per cent.

(5) Bacteria from the peritoneal cavity.—Observing the strictest operative procedures and again using methylene blue and gentian violet solution for sterilizing the skin and a sterile knife other than that used for the deeper skin and muscle layers, samples of the peritoneal fluid were taken from (a) patients with definite inflammatory symptoms such as increased temperature and white blood count, and (b) patients with non-inflammatory symptoms. Cultures made from these samples were approximately 75 per cent positive and *there were as many positive cultures in non-inflammatory as there were in inflammatory conditions.* In regard to the types of bacteria present, there were double the number of streptococci in the active inflammatory reactions and triple the number of colon bacilli. The groups of aerobic and anaerobic spore bearing rods showed greater numbers in non-inflammatory than in inflammatory conditions.

The investigators concluded from their experiments that: (1) "In 80 per cent of instances a growth can be obtained from cultures taken from within the peritoneal cavity. (2) This is true, whether the patient be male or female, and irrespective of the clinical evidence of the presence of intraperitoneal inflammatory reaction. (3) The character of the flora from within the peritoneal cavity differs markedly from that obtained from the air. (4) We believe that there is no such thing as intraperitoneal asepsis."

Current Osteopathic Literature

Abstracted by R. E. Duffell, D.O.

The Western Osteopath, Los Angeles
29: No. 7, February, 1934

*Certain Developmental Relations of Digestive Neuroses. Olive I. Bondies, D.O., and Louisa Burns, D.O., South Pasadena, Calif. —p. 7.

The Care and Prognosis of Head Injuries. K. Grosvenor Bailey, A.B., D.O., Los Angeles, Calif.—p. 10.

Impetigo Contagiosa. Edward E. Brostrom, D.O., Los Angeles, Calif.—p. 14.

Certain Developmental Relations of Digestive Neuroses—Bondies and Burns have been studying the possible relationship between developmental imperfections and the functional digestive disease in both patients and experimental animals. They give a preliminary report of their problem and several illustrative cases.

Instead of charging the digestive disturbances to the nervous system, or blaming the neuroses on faulty digestion, the authors found both disturbances due to common developmental causes. The victims were found to have low pulse pressure, shallow respiration, deficient hydrochloric acid, constipation alternating with diarrhea, mucous colitis, weak visceral muscles, flabby spinal tissues, and recurring vertebral and costal lesions. Fatigue is quick and recovery slow. Nervous symptoms vary in different patients and in the same patient. Emotions are often unstable.

In one case the following developmental defects were noticed: "irises of different color, asymmetry of ears, face and skull, webbed toes of the right foot, unusually short thumbs; Darwin point on both ears; anteversion of uterus; supernumary breast on the left side. This patient was examined for bony lesions four times over a period of ten days and at each examination the list of lesions varied. Lesions not only involved the vertebrae and ribs, but also the mandible and bones of the feet.

In another patient an infantile uterus, with sharp anteflexion, was found. The asymmetry of face, ears and skull

was moderate and although both irises were brown, one was darker than the other.

Still another patient was found on x-ray examination to have a redundant colon and the excess length was accommodated by an extra fold in the transverse section. Other stigmata included one blue and one gray iris; asymmetry of ears, face and skull, short ribs attached to the first lumbar vertebra and thumbs of greater than usual length.

Treatment of the neurotic digestive patient includes the repeated correction of lesions. Straps, bandages, supports and other measures which might not be advisable or useful for persons without developmental defects, are justifiable for the persistently recurring lesions. Other measures such as hydrotherapy, colonic flushings, correct dietary, freedom from worry and excitement, and occasionally complete rest in bed will enable these individuals to be fairly comfortable.

The College Journal, Kansas City College of Osteopathy and Surgery

18:33-64 (Feb.) 1934

Cervical Ribs. George J. Conley, D.O., Kansas City.—p. 36.
*The Acute Middle Ear in Childhood. A. B. Crites, D.O., Kansas City.—p. 38.
Gluteal Erythema or Erythema of Jacquet. Annie G. Hedges, D.O., Kansas City.—p. 40.
The Gynecological Patient. Mamie Johnston, D.O., Kansas City.—p. 46.
Salient Points for the Osteopathic Accoucher. Louise Ferris-Swift, D.O., Kansas City.—p. 47.
"Obstreperous Obstetrics." Margaret Jones, D.O., Kansas City.—p. 50.
Malaria. A. A. Kaiser, D.O., Kansas City.—p. 52.
Fever (Body Temperature). J. L. Jones, D.O., Kansas City.—p. 54.

The Acute Middle Ear in Childhood—The predisposing causes of otitis media in children are the greater prevalence of adenoids and certain anatomical characteristics of the eustachian tube which are different than in the adult. A short and horizontal tube, a tympanic floor level below that of the nasal floor, and the pharyngeal opening of the infant tube on the same level as the hard palate are "particularly favorable to the entrance of bacteria from the nasal secretion draining posteriorly into the pharynx, and to the development of vascular changes as a result of any pathological condition within the nose or nasopharynx."

The immediate exciting causes may be the common head cold, forcible nose blowing, exanthematous diseases, influenza, and other pharyngeal infections. The symptoms are recognized as restlessness, fever, and crying. The child may or may not grab at his ear. The appearance of the ear drum is diagnostic. It is red and bulging. The local treatment is to establish free drainage by myringotomy. Drainage is maintained by a wick introduced down to the drum and changed as needed. Dry heat helps. The general treatment is directed to the pharyngitis present and the usual hygienic and osteopathic care.

The Journal of Osteopathy, Kirksville, Mo.

41:57-102 (Feb.), 1934

Tennis and Osteopathy. William T. Tilden—p. 57.
*Hallux Valgus. Harold E. Clybourne, D.O., Columbus, O.—p. 63.
Sacro-iliac, Part II. F. P. Millard, D.O., Toronto, Ont.—p. 69.
Cardiac Affections. Arthur D. Becker, D.O., Kirksville, Mo.—p. 71.
Dementia Praecox. F. M. Still, D.O., Macon, Mo.—p. 73.
Arthritis. Gilbert H. Kroeger, B.S., Kirksville, Mo.—p. 75.
Vaccine Therapy in Arthritis. H. E. Litton, D.O., Kirksville, Mo.—p. 79.
Arthritis Post-Graduate Findings. George W. Goode, D.O., Boston.—p. 81.
The Interpretation of Neurological Symptoms, Part. II. Leon E. Page, D.O., Chicago.—p. 83.
Devitalized Teeth. E. E. Walcher, D.D.S., Kirksville, Mo.—p. 86.

Hallux Valgus—Clybourne states that hallux valgus and bunion are two entirely different conditions. There may be a slight osteophytic outgrowth in hallux valgus, but the deformity is due to the fact that the first metatarsal has been forced out of position by muscle-tendon unbalance. A true bunion is an inflammatory swelling of the bursa over the metatarsophalangeal joint of the great toe and accompanies hallux valgus in three out of ten cases. True bunion without hallux valgus is rare.

The causes of hallux valgus are given as (1) hereditary weakness of the metatarsophalangeal joint; (2) improperly fitting shoes and stockings which do not conform to the natural contours of the feet and change the distribution of the body weight; (3) fallen arches and foot strain, due principally to a faulty position of the os calcis and associated articulations, again affecting distribution of body weight.

Too much weight is usually thrown on the first metatarsal which forces the bone to the median line; the sesamoid bones situated beneath the first metatarsal are forced up between the heads of the first and second metatarsals. This occurs because the abductor hallucis muscle attached to the lesioned os calcis is weakened and its antagonistic muscle, the adductor hallucis, pulls the base of the proximal phalanx out, with a buckling result. Clybourne says: "The muscles, even when inactive, are kept in a state of tension or tendon balance so that no one muscle can affect the position of the toe."

He further states that the Robinson operation is based on the fact that restoration of the normal tendon balance of this joint halts this buckling and the resultant deformity is remedied.

Causes of Lesions in Pregnancy

Lionel J. Gorham in the *M.O.H. News* for January, 1934, gives the most important causes of osteopathic lesions in pregnancy. The first of these is the superimposed weight of the pregnant uterus which results in a change in the center of gravity. An exaggerated lordosis takes place, which causes varying degrees of sliding of the fifth lumbar downward and forward on the sacrum. To compensate, the patient throws her shoulders back and lesions in the upper spine occur. High heels tend to exaggerate this condition. One inch heels are recommended.

As pregnancy progresses, there is marked relaxation and increased mobility of the sacro-iliac joints as well as separation of the symphysis pubis. This may result in the production of lesions. After correction a mechanical support is sometimes necessary.

Conventions and Meetings

Announcements

American College of Osteopathic Surgeons, Des Moines, October, 1934.

American Osteopathic Association, Thirty-eighth annual convention, Wichita, Kan., week of July 23, 1934.

American Osteopathic Society of Ophthalmology and Otolaryngology, Wichita, Kan., July 19, 20, 21, 1934.

Arizona state convention, Phoenix, May, 1934.

Arkansas state convention, Little Rock, May, 1934.

California state convention, Long Beach, June, 1934.

Eastern Osteopathic Association convention, New York City, March 10 and 11, 1934.

Florida state convention, Gainesville, May 3 and 4, 1934.

Idaho state convention, Pocatello, 1934.

Illinois state convention, Ottawa, May, 1934.

Indiana state convention, French Lick, October 10 and 11, 1934.

International Society of Ophthalmology and Otolaryngology, Wichita, Kan., July 18, 1934.

Kansas state convention, Manhattan, October, 1934.

Michigan state convention, Detroit, 1934.

Missouri state convention, Kansas City, October, 1934.

Montana state convention, Great Falls, September 3, 4, 5, 1934.

Nebraska state convention, Columbus, September 24-26, 1934.

New York state convention, Rochester, October 13 and 14, 1934.

North Carolina state convention, Durham, May, 1934.

Ohio state convention, Columbus, May 13, 14, 15, 1934.

Oklahoma state convention, Seminole, April 19, 20, 1934.

Pennsylvania state convention, Philadelphia, May 10-12, 1934.

South Carolina state convention, May, 1934.

South Dakota state convention, Sioux Falls, 1934.

Tennessee state convention, Nashville, 1934.

Texas state convention, Fort Worth, May, 1934.

Vermont state convention, Randolph, September, 1934.

Virginia state convention, Richmond, May, 1934.

(Continued on following pages)

CALIFORNIA

East Bay Osteopathic Society

A meeting of the society was held February 10 in the East Bay Osteopathic clinic, Oakland. A symposium on "Headaches and Their Various Causes" was presented by various members of the society.

Hollywood Osteopathic Luncheon Club

On January 23, Floyd J. Trenery, Los Angeles, manager of the Monte Sano Hospital, addressed the club on the "Treatment of Head Injuries." On January 30, Bruce S. Collins of the faculty of the College of Osteopathic Physicians and Surgeons, spoke on "Reconstruction of the Arches of the Feet." In addition to the officers published in the February JOURNAL, the following were elected: Amy S. Ziegler, vice president; Courtney Thomas, secretary; Walter Goodfellow, treasurer.

Los Angeles Osteopathic Surgical Society

Mr. Howard W. Merrill, subinterne at the Los Angeles College clinic, was guest of honor at a dinner-meeting of the society January 19. Mr. Merrill discussed blood therapy used in the treatment of osteomyelitis and chronic infections.

Orange County Osteopathic Society

At a meeting of the society January 11 in Santa Ana, Cyrus J. Gaddis, Beverly Hills, spoke on postural faults in children.

Pasadena Osteopathic Society

The regular monthly meeting of the society was held January 18 at the home of J. Strothard and Mrs. White. Members of the Women's auxiliary acted as hostesses.

San Diego County Osteopathic Association

At the regular monthly meeting of the association held January 5 at San Diego, James M. Watson, Los Angeles, spoke on "Prophylaxis in the Field of Pediatrics."

H. F. Ludwig, president of the association, reported that the clinic at Neighborhood House showed during the last six months a total of 386 visits with 88 new patients.

Tri-County Osteopathic Society

A meeting of the society was held January 27 at Santa Barbara. C. J. Gaddis, Beverly Hills, spoke on "Postural Defects in Children" and "The Bedside Technic in Pneumonia."

COLORADO

Colorado Osteopathic Association

A sectional meeting of the association, with doctors present from Boulder, Longmont, Loveland, Colorado Springs, Fort Collins and Denver was held January 20 at Boulder. John A. Austin, Boulder, talked on "Obstetrics"; Helen Gibbon, Boulder, spoke on "Research with Louisa Burns"; and other talks were given by M. M. Ruffo and E. J. Willbanks, both of Denver. R. R. Daniels, Denver, reported on the Rocky Mountain Osteopathic Hospital, stating that the institution is in excellent shape. Several improvements have been made, notably the installation of a new heating system.

A resolution was adopted by the association to support the proposed bond issue to provide Denver with an adequate sewage disposal system.

Cortex Club

At the January 15 meeting of the Cortex Club in Denver, G. W. Bumpus was elected president; J. F. Schedine, vice president; and M. M. Ruffo, secretary-treasurer.

CONNECTICUT

Connecticut Valley Osteopathic Association

(See Massachusetts)

DELAWARE

Delaware Osteopathic Society

A dinner-meeting of the society was held January 11 at Wilmington. J. Francis Smith, professor of psychiatry of the Philadelphia College of Osteopathy, explained the application and general practice of psychotherapy. John W. Allen, Wilmington, reported on clinic work.

FLORIDA

Lake County Association of Osteopathic Medicine and Surgery

The second meeting of the association was held January 9 at Eustis in the offices of P. R. Spencer. After disposing of the formal business of the evening, a profitable round table discussion followed, in which matters of special or general importance were considered.

IDAHO

Boise Valley Osteopathic Society

A meeting of the society was held January 18 at the home of L. D. Anderson, Boise. F. H. Thurston, Boise, read a paper on "The Anatomy and Physiology of the Spinal Cord." O. R. Meredith, Nampa, gave a talk on "The Physiology of Digestion." Dr. Anderson showed motion pictures of A Century of Progress exposition.

ILLINOIS

Chicago Osteopathic Society

The February meeting was held on the 1st. A. G. Hildreth of the Still-Hildreth Sanatorium, Macon, Mo., gave the principal address. He spoke on "Insanity, Its Care and Treatment."

North Shore Osteopathic Society

A meeting of the society was held February 16 in Evanston, Ill. James A. Stinson of the Chicago College of Osteopathy spoke on "Technic and Treatment of Injuries to the Knee."

West Suburban Osteopathic Society

The annual business meeting of the society was held January 20 at the home of Merle J. Denker, Riverside. Erich E. Frankowsky exhibited and discussed an extensive series of roentgenograms.

Officers were elected as follows: President, John P. Lycan, Oak Park; vice president, Dr. Denker; secretary-treasurer, Melvin B. Hasbrouck, Geneva. Members of the program committee were appointed as follows: Horace Bradley, Elmhurst; Ernest R. Peterson, Oak Park; C. N. Clark, Oak Park. Those on the arrangements committee are Mesdames Herbert B. Raymond, Hinsdale; Erich E. Frankowsky, Oak Park; and C. N. Clark, Oak Park.

South Side (Chicago) Osteopathic Physicians' Society

In addition to the officers named in THE JOURNAL for December, 1933, the following committee chairmen have been appointed: Membership, Wilbur Downing; professional education, Henry C. Sands; ethics, Albert Esser; industrial and institutional service, Mary Alice Hoover; clinics, Louis C. Hanavan; publicity, Bertha Hapke; statistics, Frederick B. Shain; convention program, Robert Clarke; legislation, Mary E. and H. M. Heffelfinger; professional development, May Walstrom.

Second District Osteopathic Association

W. A. McClimans, Harvard, reports that a regular meeting of the association was held January 11 at Rockford. Charles E. Medaris, Rockford, was chairman of the program. M. C. Beilke, Chicago, presented a report on Illinois Osteopathic Association activities and discussed "Applied Technic of the Cervical and Sacro-iliac Articulations." L. R. Trowbridge, Dixon, lectured on "Lumbar Technic"; E. P. Wright, Belvidere, on "Upper Dorsal Technic"; and H. T. Wise, Rockford, on "Innominate Technic."

Third District Osteopathic Association

A meeting of the association was held January 10 at Canton. E. C. Andrews of the Ottawa General Hospital, gave the principal address. Dr. Andrews spoke on "Thermogenic Therapy." His associates in the Ottawa General Hospital, Miss Helen J. Voltmer, superintendent, Mrs. Stanley G. Bandeen, dietitian, and Albert Rudolph Bellerue, M.D., also gave brief addresses.

INDIANA

Indianapolis Osteopathic Society

Officers elected in September, 1933, but not yet reported are: President, C. B. Blakeslee; vice president,

O. E. Smith; secretary-treasurer, F. E. Magee. The society meets the first Friday of each month.

St. Joseph Valley Osteopathic Association

Rev. Wendell Corcoran, C.S.C., of Notre Dame, Ind., gave an informal talk to the association at a dinner-meeting held January 17 at South Bend. Following the talk officers elected at the last meeting were installed.

IOWA

Polk County Osteopathic Association

Richard N. MacBain, dean of the Chicago College of Osteopathy, addressed a meeting of the association February 9 at Des Moines. Dr. MacBain had previously been scheduled for the January 12 meeting, but the engagement was postponed.

KANSAS

Arkansas Valley Society of Osteopathic Physicians and Surgeons

The December meeting was held on the 28th at Larned in the offices of Thomas B. Powell. L. H. Opdyke, Otis, discussed the "Diagnosis of Pregnancy in the First Trimester." R. T. McCreight, Larned, spoke on "Laboratory Diagnosis of Pregnancy," and F. E. Loose, Lewis, discussed and demonstrated "Osteopathic Technic."

The January meeting was held on the 25th at Great Bend. C. Frederick Smith, Kinsley, spoke on "Diagnosis and Treatment of the Lower Extremities."

Central Kansas Society of Osteopathic Physicians and Surgeons

Lawton M. Hanna, Clay Center, reports that a meeting of the society was held January 23 at Abilene. Athletic injuries were featured at this meeting and nearly half those present were athletic coaches. The meeting was in charge of E. F. Stark, Abilene, who introduced the speaker, H. V. Halladay, Des Moines. Dr. Halladay spoke on "The Athlete, the Coach and the Doctor."

North Central Kansas-South Central Nebraska Osteopathic Association

The regular monthly meeting was held February 8 at Beatrice, Nebr. Thomas O. Pierce, Pierce Hospital, St. Joseph, Mo., gave the principal address. He spoke on some of the problems of the profession and methods of meeting them.

The new officers of the association are: President, Ezra N. Ingham, Wymore, Nebr., and secretary, Irwin Elliott Nickell, Smith Center, Kans.

Southern Kansas Osteopathic Association

K. A. Bush, Harper, reports that the January meeting was held February 9 at Caldwell, in the offices of R. R. Wallace. W. S. Corbin, Wellington, presented a clinical case. At the business meeting a schedule of fees was drawn up for presentation to the FERA. Work was started on making a uniform history blank for all members.

Topeka Osteopathic Association

The January meeting was held on the 4th in charge of Nancy J. Godfrey, Topeka, president. The February meeting was held on the 15th in connection with the semiannual meeting of the Kansas Board of Osteopathic Examination and Registration. L. E. Thomas, Topeka, was chairman of the committee to arrange for the program. W. S. Childs, Salina, spoke on "The Depression and Our National Character."

The officers of the association were published in the December JOURNAL. E. Claude Smith, Topeka, is chairman of the legislative advisory committee, and Genevra E. Leader, Topeka, is chairman of publicity.

Verdigras Valley Osteopathic Association

Milton V. Gafney, Neodesha, reports that the February meeting was held on the 8th at Independence. Gil Meyers, Tulsa, Okla., spoke on eye, ear, nose, and throat problems of the general practitioner. Discussion of the Kansas FERA and CWA program followed the address. The association voted 100 per cent to attend the coming convention in Wichita.

MAINE

State Association

The midwinter meeting of the state association was held February 3 at Portland. Perrin T. Wilson, Cambridge, Mass., president of the American Osteopathic Association, gave the main address. His topic was "Immunity."

Central Maine Osteopathic Group

The annual meeting of the association was held January 6 at the home of William Clare and Nora R. Brown, Waterville. Jerome M. Watters, Newark, N. J., gave a talk on ear, nose, and throat work and conducted a clinic.

Officers were elected as follows: President, Elmer I. Whitney, Madison; vice president, Fred Sowden, Gardiner; secretary-treasurer, Wallis L. Bursey, Farmington.

Olga H. Gross, Pittsfield, publicity chairman, reports that the February meeting was held on the 11th at the home of William H. Sherman, Augusta. Monroe E. Beverly, Augusta, gave a paper on "Varicose Veins." The next meeting is scheduled for Waterville on March 4.

Eastern Maine Osteopathic Society

At a meeting of the society held January 12, the following officers, all of Bangor, were elected: President, Charles B. Doron, and secretary-treasurer, Ralph L. Wooster. Charles A. Metcalf was appointed chairman of clinics, and Arthur G. Jewell, Brewer, of publicity.

MARYLAND

State Association

A meeting of the association was scheduled to be held February 24 at Baltimore. Ralph P. Baker, Lancaster, Pa., was to speak on "Office Methods of Testing Renal Function."

MASSACHUSETTS

State Society

Officers elected January 6 were published in the February JOURNAL. Committee chairmen have been appointed as follows: Membership, Kenneth Hiscoe, Cambridge; professional education, George T. Smith, Holyoke; hospitals, Gervase C. Flick, Jamaica Plains, Boston; ethics, M. T. Mayes, Springfield; student recruiting, Gordon W. Barrett, Pittsfield; public health and education, M. R. Spalding, Auburn; industrial and institutional service, Paul Norris, Lynn; clinics, publicity and statistics, Dr. Norris; convention program, Charles W. Wood, Holyoke; convention arrangements, Myron B. Barstow, Boston; legislation, Charles R. Wakeling, Boston; professional development, Frank M. Vaughan, Boston; displays at fairs and expositions, Dr. Norris.

Connecticut Valley Osteopathic Association

George T. Smith, Holyoke, secretary, reports that a meeting of the association was held January 16 at Springfield. Bertha L. Miller, Springfield, reviewed Charles Hazzard's article on cell tension which appeared in the December JOURNAL. Dr. Smith reviewed the lecture on "Hypotension" given before the society by G. C. Flick, Boston. Case reports were given by Murry Catron and Fred Bragg, both of Springfield, Clyde A. Clark, Hartford, Conn., and Grace FitzGibbon, Holyoke. A talk on x-ray interpretation of joint diseases was given by Philip S. Taylor, Springfield.

Officers of the association were published in the January JOURNAL. Committee chairmen have been appointed as follows: Emergency Relief, C. M. Van Duzer, Greenwich, Conn.; membership, Dr. Catron; professional education, Ward C. Bryant, Greenfield; hospitals, LaRue Kemper, Amherst; student recruiting, Victor J. Manley, West Springfield; constitutional committee, George A. Haswell, Northampton, Alexander B. Russell, Springfield, and Paul Brose, Holyoke; industrial and institutional service, C. L. Symington, Westfield; publicity, Dr. Miller; meeting program, Maude G. Williams, Northampton; meeting arrangements, Dr. Bragg; legislation, Dr. Taylor.

MICHIGAN

Association of Osteopathic Physicians of Southwestern Michigan

The regular monthly meeting of the association was

scheduled for January 26 at Berrien Springs. E. B. Porter, South Bend, Ind., was to be the principal speaker.

Detroit Association of Physicians and Surgeons of Osteopathic Medicine

The January meeting was held on the 17th at Detroit. Raymond P. Keesecker, Roscoe Osteopathic Clinic, Cleveland, Ohio, was the principal speaker.

The February meeting was held on the 21st. O. O. Bashline, Grove City, Pa., was scheduled to speak. The association is making plans to have A. G. Hildreth, Macon, Mo., as speaker for the March meeting.

R. K. Homan, secretary, advises that much work is being done toward formulating a committee to function with the local FERA. After several special meetings a committee was appointed as follows: P. E. Haviland, chairman, George B. F. Clarke and H. B. Nichols.

Genesee County Osteopathic Association

John H. Laird, Jr., Flint, Mich., has been appointed chairman of the membership committee and is also state statistician. A. Jefferson Still, Flint, is chairman of the publicity committee. Dr. Laird and Dr. Still are both members of the recently reorganized Genesee County Osteopathic Association formerly known as the Flint Osteopathic Society.

Oakland County Society of Osteopathic Medicine and Surgery

Ross B. Richardson, Detroit, reports that the association held a meeting on February 15 at Bloomfield. Elmer Charles, Pontiac, gave a talk on "Treatment of Diseases with Osteopathy."

MINNESOTA

Tri-County Society of Osteopathic Physicians and Surgeons

The February meeting was held on the 8th at the offices of Karl Burch, Wabasha. A recital clinic was held. Clifford Dartt, Red Wing, announces that the March meeting will be held with C. E. Mead at Red Wing.

MISSOURI

Missouri Association of Osteopathic Physicians and Surgeons

Ottis L. Dickey, Joplin, reports that a meeting of the Board of Directors of the state association took place January 14 at Columbia.

Buchanan County Osteopathic Association

A meeting of the association was held January 12 at St. Joseph. W. P. Lenz gave a series of x-ray studies. At another meeting held February 2, O. G. Weed presented a paper and led a discussion on goiter. The paper was discussed by T. O. Pierce, W. E. Hartsock, Frank P. Walker, and Will W. Grow.

Central Missouri Osteopathic Association

The association met January 18 at Jefferson City.

Kansas City Society of Osteopathic Phvsicians and Surgeons

H. J. McAnally, president of the society, has completed arrangements with the Jackson County Relief Association for osteopathic participation in the care of the indigent sick.

North Central Missouri Osteopathic Association

A meeting of the association was held January 18 at Brookfield, in the offices of W. B. Simpson. R. H. Wahl, Cameron, read a paper on "Eugenic Sterilization."

Northwest Missouri Osteopathic Association

The January meeting was held on the 11th at Bethany. After the dinner a round table discussion was held in the offices of E. F. Harding.

The February meeting was held on the 8th at St. Joseph. F. P. Walker, St. Joseph, spoke on the hospital status as it pertains to the osteopathic profession. E. D. Holme, St. Joseph, summarized recent professional advances. E. C. Wykoff, Kansas City, spoke on "Adequate Gynecological Treatment to Prevent Surgery." J. H. Denby, Kirksville, gave an address on "Obstetrics."

Ozark Osteopathic Association

U. Louise Remmert, Springfield, reports that the third annual banquet in honor of the women's auxiliary was held January 29 at Springfield. Charles E. Still, Sr., Kirksville, spoke on "Prominent Lay People Who Have Interested Themselves in Osteopathy." T. M. King, Springfield, spoke on the "Value of Organizations."

Southeast Missouri Osteopathic Association

The regular monthly meeting was held January 14 in the offices of E. J. Gahan, at Perryville. J. L. Margreiter, Flat River, spoke on "Respiratory Diseases." M. Marguerite Fuller, Cape Girardeau, led a round table discussion on winter ills.

Southwest Missouri Osteopathic Association

A meeting of the association was held January 17 at Webb City. W. J. Conner, Kansas City, gave the principal address. O. L. Dickey, Joplin, gave a report of the January meeting of the Board of Directors of the state association. Myrtle M. Dickey, Joplin, was appointed to secure memberships in the state association. C. F. Gregory, Webb City, secretary, was instructed to send telegrams of protest to CWA headquarters in Washington and to Missouri senators regarding medical discrimination. The March meeting is scheduled for the 21st at Monett.

Officers of the association elected at a meeting held September 20, 1933, but not yet reported are as follows: President, Clyde B. Spangler, Joplin; vice president, Myrtle M. Dickey, Joplin; secretary, C. F. Gregory, Webb City. Chairmen of committees have been appointed as follows: Membership, D. K. Copeland, Joplin; professional education, E. Gertrude Ferguson, Neosho; hospitals, A. B. Wheeler, Carthage; ethics, E. G. Story, Carthage; student recruiting, Dr. M. Dickey, Joplin; public health, Mildred Wilkerson, Joplin; industrial service, M. S. Slaughter, Webb City; clinics, H. A. Welch, Joplin; publicity, Ottis L. Dickey, Joplin; statistics, S. B. Kiblinger, Joplin; legislation, George W. Cox, Webb City; displays at fairs, Dr. O. L. Dickey.

West Central Missouri Osteopathic Association

A meeting of the association was held January 18 at Clinton in the offices of G. S. Wetzel. C. A. Tedrick of the Lakeside Hospital, Kansas City, was the principal speaker of the evening. R. H. Nuckles, Slater, also made an address.

NEBRASKA

Central Nebraska Osteopathic Association

The association met January 20 at the office of W. H. Baker in Aurora. J. R. Bancroft, Hebron, president of the state association, gave a brief talk. Lectures by various members of the association comprised the balance of the meeting.

Douglas County Osteopathic Society

A meeting of the society was held January 10 at Omaha. T. D. Quigley, M.D., of the Nebraska University Medical School, spoke on the "Effects of Vitamins in Dentition and Bone Building in the Human Body."

Southwestern Nebraska-Northwestern Kansas Osteopathic Society

A meeting of the society was held January 14 at McCook, Nebr. Those scheduled to speak were: H. A. Fenner, North Platte, M. T. Boulware and Mary C. Hardin, both of McCook.

Officers were elected at this meeting as follows: President, D. A. Furman, McCook; secretary-treasurer, J. F. Harding, Holdrege.

NEW JERSEY

State Society

The January meeting of the society was held on the 13th at Newark. Wilbur P. Lutz, Philadelphia, spoke on "What Osteopathy Is Doing for Heart Cases;" C. Haddon Soden, Philadelphia, spoke on "Practical Demonstrations of Osteopathic Technic"; and Thomas R. Thorburn, New York, spoke on "Osteopathic Diagnoses." The society went on record at this meeting as being opposed to the Tugwell Pure Food and Drug Bill as recently introduced into Congress by Senator Royal S. Copeland.

The February meeting was scheduled to be held on the 10th at Newark. The program was to include talks by Fred Morris, Glen Rock, H. W. Sterrett, Philadelphia, and Wm. S. Nicholl, Philadelphia.

Southern New Jersey Osteopathic Society

A meeting was scheduled for February 17 at Collingswood. Earl H. Gedney, Philadelphia, was asked to speak, and "Osteopathic Technic" was announced as his subject. On March 17th the society is planning to meet with the Philadelphia County Osteopathic Society at Camden.

NEW YORK

Binghamton District Osteopathic Society

The monthly meeting of the society was held February 3 at the office of E. W. Cleveland, Binghamton. Arvo Salo, Corning, spoke on "Applied Anatomy of the Foot."

Central New York Osteopathic Society

Arthur Shannon, Oneida, reports that the January meeting of the society was held on the 24th at Syracuse. C. W. W. Hoffman and F. C. Humbert, both of Syracuse, gave final reports on the New York state convention held in October, 1933. Francis Beal, Jr., Syracuse, presented a paper on the "Thyroid Gland." J. R. Miller, Rome, and Fred Miller, Oneida, gave recent data on legislative activities. Fred Gruman and Allen Prescott, both of Syracuse, discussed proposed changes in compensation law as it would apply to osteopathic physicians.

Hudson River North Osteopathic Society

A meeting of the society was scheduled for February 3 at Albany. Alice A. Brown, Troy, was in charge of the program.

Eastern Osteopathic Association

The convention program for the meeting March 10 and 11, at the Hotel Pennsylvania, New York City, as published in advance is as follows:

SATURDAY

Morning

9:00—"Management of the Cardiac," W. D. CRASKE
10:00—"Posture and Backache," E. R. HOSKINS
11:00—"Pre-Natal and Post-Partum Pathology and its Relationship to the General Practitioner," H. W. EVANS
12:00—Exhibits. Luncheon

Afternoon

2:00—"Nutritional Treatment of Lowered Resistance," S. L. DAVIS
3:00—"Urinary Urgency and Frequency," H. W. STERRETT
4:00—"Formulating and Maintaining Osteopathic Legislation," A. G. CHAPPELL
5:00—Business Session. Nomination of Officers

SUNDAY

Morning

9:30—"The Function of Minerals in Metabolism," S. L. DAVIS
10:30—"Cancer and the General Practitioner," R. P. BAKER
11:30—"State Medicine," A. G. CHAPPELL
12:30—Exhibits. Luncheon

Afternoon

2:30—"Roentgen-ray Diagnosis of Gastric Neoplasm," E. R. HOSKINS
3:30—"Diagnosis and Treatment of Common Diseases of the Colon," W. D. CRASKE
4:30—"Osteopathic Treatment in Pneumonia," C. H. SODEN
5:30—Business Session. Adjournment

Osteopathic Society of the City of New York

A meeting of the society was scheduled for January 18 at the Hotel Commodore, New York.

OHIO

Ashtabula Osteopathic Society of Physicians and Surgeons

A meeting of the society was held January 10 at Conneaut. R. A. Sheppard, Cleveland, lectured on "Genito-urinary Infections."

Lorain and Erie County Osteopathic Society

A meeting of the society was held January 24 in the office of M. A. Brandon, Lorain. Technical papers were given by five members of the society. The February meeting was scheduled to be held in Elyria.

First (Toledo) District Osteopathic Society

The January meeting was held on the 17th at Fostoria. Ralph Vorhees, Cleveland, spoke on "The General Care of the Eyes, Ears, Nose, and Throat."

Second (Cleveland) District Osteopathic Society

The January meeting was held on the 8th at Cleveland. Perrin T. Wilson, Cambridge, Mass., President of the American Osteopathic Association, was the principal speaker.

Fifth (Dayton) District Osteopathic Society

The January meeting was held on the 17th at Dayton. H. E. Clybourne, Columbus, spoke on "Osteopathic Technic for the Feet."

Lyceum Circuit

R. C. McCaughan, Executive Secretary of the American Osteopathic Association, made a tour, during the early part of February, through the principal osteopathic centers in Ohio. He spoke at the various district meetings and made numerous vocational talks to high schools. His message to the profession was, "Osteopathy's Necessities." On February 5 he spoke to the assembled osteopathic physicians in Toledo; on February 6 he spoke at Cleveland; on February 7 at Kent; on February 8 at Columbus; on February 9 at Dayton; and on February 10 at Cincinnati.

Ohio Valley Osteopathic Association

(See West Virginia)

OKLAHOMA

Central and Eastern Oklahoma Osteopathic Associations

A meeting of the associations was held January 14 at Okmulgee. E. S. Gardiner, Detroit, was the principal speaker.

Kay County Osteopathic Association

D. A. Shaffer, Ponca City, reports that the February meeting was held on the 8th at Blackwell. Dr. Shaffer read a paper on "Diseases of the Gallbladder." W. W. Palmer, Blackwell, talked on "X-ray Diagnosis of Gallbladder Infections," and F. C. Davis, Tonkawa, on the "Anatomical Structure of the Gallbladder." The next meeting was scheduled for March 8 at Ponca City.

OREGON

State Society

At the regular mid-year meeting of the Oregon Osteopathic Association January 13 and 14 at Portland, a women's auxiliary was organized. Officers were elected as follows: President, Mrs. G. E. Holt, Pendleton; first vice president, Mrs. W. W. Hoard, Medford; second vice president, Mrs. L. C. Marshall, Salem; secretary, Mrs. L. R. Purkey, Portland; treasurer, Mrs. F. D. Logue, The Dalles. Katherine Myers Beaumont, Portland, was elected chairman of publicity.

OSTEOPATHIC SOCIETY FOR THE ADVANCEMENT OF PHYSIOTHERAPY

The January meeting was held on the 14th at Reading. Guy W. Merryman, Hales, was in charge of the clinics. The program included talks by George T. Hayman, Doylestown, W. E. Buller, Allentown, John W. Allen, Wilmington, Del., George W. Hales, E. G. Vergara, E. R. Thieler and Carlton Street, all of Philadelphia.

PENNSYLVANIA

Butler County Osteopathic Society

This society was organized January 25 at Butler. The following officers were elected: President, Clara E. Morrow, Butler; vice president, J. C. Foster, Butler; secretary-treasurer, Harry W. Nicklas, Evans City. Ira Allen, Butler, was named chairman of the program committee. A committee composed of Drs. Morrow, Harden and Foster was chosen to act in compliance with the State Emergency Medical Relief Board for care of osteopathic patients who are receiving aid from the state relief board.

Central District Osteopathic Society

A meeting of the society was held January 27 at Harrisburg. Ralph P. Baker, Lancaster, spoke on "Genito-urinary Diagnosis". Harry J. Herr, Lititz, led the discussion on "Sciatica." H. C. Orth, Lewistown, president, was in charge of the meeting.

Juniata Valley Osteopathic Society

The January meeting was held on the 18th at Lewistown. Harry Fowler, Lewistown, spoke on "The New Strategy Against Tuberculosis."

Lancaster County Osteopathic Society

R. D. Smedley, Mount Joy, reports that the annual dinner meeting of the society was held January 25 at Quarryville. The guest speakers were Ralph L. Fischer and H. Walter Evans, both of Philadelphia, C. Earl Evans, Chester, H. C. Orth, Lewistown, and J. E. Barrick, York.

The following officers were elected and committee chairmen appointed: President, Harry J. Herr, Lititz; vice president, L. W. Lovelidge, Strasburg; secretary-treasurer, Ellis H. Metford, New Holland. Chairman of professional education, A. E. Kegerreis, Lancaster; hospitals, R. P. Baker, Lancaster; clinics and publicity, Dr. Smedley.

Lehigh Valley Osteopathic Society

The annual business meeting was held January 18 at Allentown. O. J. Snyder, Philadelphia, was the principal speaker. His subject was "The History of Osteopathy in Pennsylvania."

Officers elected at this meeting were as follows: President, A. G. Walmsley, Bethlehem; vice president, Charles R. Heard, Allentown; secretary-treasurer, George Nelis, Bethlehem.

TEXAS

Lower Rio Grande Valley Osteopathic Association

The regular monthly meeting of the association was held January 27 at Mercedes. The business meeting and a minor surgical clinic were held in the offices of A. L. Kline. W. E. Davis, McAllen, read a paper on "Acidosis." Dr. Kline gave a brief discussion of the "Hydrocholoric Acid Intravenous Treatment of Asthma."

Panhandle Osteopathic Society

A meeting of the society was scheduled for January 20 at Amarillo. H. C. Wallace, surgeon in chief of the Southwestern Osteopathic Hospital at Wichita, Kans., was invited to conduct the surgical clinic at the Amarillo General Hospital. R. H. Peterson, Wichita Falls, and C. P. Callison, Pampa, were also scheduled to be on the program.

San Antonio Osteopathic Society

The January meeting of the society was held on the 11th at San Antonio. Everett W. Wilson, San Antonio, discussed "Chronic Arthritis and Treatment by Artificial Body Temperature." Lester O. Morris, San Antonio, discussed the Tugwell bill.

WASHINGTON

King County Osteopathic Association

Clarence B. Utterback, Tacoma, reports that H. V. Hoover, Tacoma, was scheduled to address a meeting of the association February 8 at Seattle. His topic as published in advance was "Osteopathy in Obstetrics." W. E. Waldo and J. F. Martin, both of Seattle, were also scheduled to make addresses.

Yakima Valley Osteopathic Association

The annual business meeting of the association was held January 27 at Yakima. All officers were reëlected for another year. They are: President, J. Holt Robison, Yakima; vice president, George Sutherland, Selah; and secretary-treasurer, R. R. Sterrett, Yakima.

WEST VIRGINIA

Ohio Valley Osteopathic Association

O. C. Titus, Moundsville, W. Va., reports that the association met Februarv 1 with E. E. Sieg at Hollidays Cove, W. Va. The formation of an Ohio Valley clinic was considered. G. C. Eoff, Wellsburg, W. Va., offered a resolution protesting the attitude of CWA officials toward osteopathic physicians which was unanimously adopted.

WISCONSIN

Milwaukee District Osteopathic Society

J. B. Baldi, Milwaukee, reports that a meeting of the society was held January 18 at the City Club in Milwaukee. Robert Fry, Oshkosh, read a communication concerning the adverse ruling on compensation for osteopathic care of CWA workers. J. J. McCormak, Sheboygan, gave a talk on "Sacro-iliac and Lumbar Conditions" and demonstrated his talk with blackboard drawings and x-ray pictures.

British Columbia Osteopathic Association

G. Cuthbert Taylor, Vancouver, secretary, reports that the regular monthly meeting of the association was held February 15 in Vancouver. H. S. Saita, Vancouver, presented a paper on the "General Treatment of Fractures."

Vernon K. Hall, Vancouver, has been appointed chairman of clinics, William C. Atkinson, chairman of publicity, and J. T. Atkinson, chairman of legislation, both of Vancouver.

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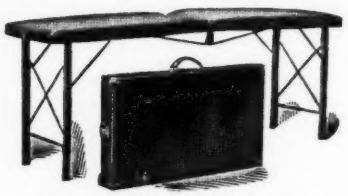

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Dinges, Ransom L., KCOS '34 (Jan.), located at Orangeville, Ill.

Farmer, Frank, from 1008 W. Sixth St., to 1053 W. Sixth St., Los Angeles.

Fix, Clarence B., from Laredo, Texas, to Mount Pleasant, Texas.

Fleming, Kenneth S., from Cleveland, to Box 715, East Liverpool, Ohio.

Gehman, R. W., from 2506 Beaver Ave., to 2901 Beaver Ave., Des Moines, Iowa.

Haberer, Bert, from 338 Maynard St., to 303 S. Division St., Ann Arbor, Mich.

Haswell, George A., from 78 Main St., to 4 West St., Northampton, Mass.

Kanouse, Allen M., from Oakland, Calif., to 3101 College Ave., Berkeley, Calif.

Kell, Robert J., from Pittsburgh, Pa., to Palmer Bank Bldg., Sarasota, Fla.

Larkins, Fred B., from 610 Philtower Bldg., to 309 Philtower Bldg., Tulsa, Okla.

MacDonough, Charles Q., from Philadelphia, to 1 Lincoln Bldg., Ardmore, Pa.

Maginnis, Thelma G., from 76 Laurel Ave., to 79 Stuyvesant Ave., Arlington, N. J.

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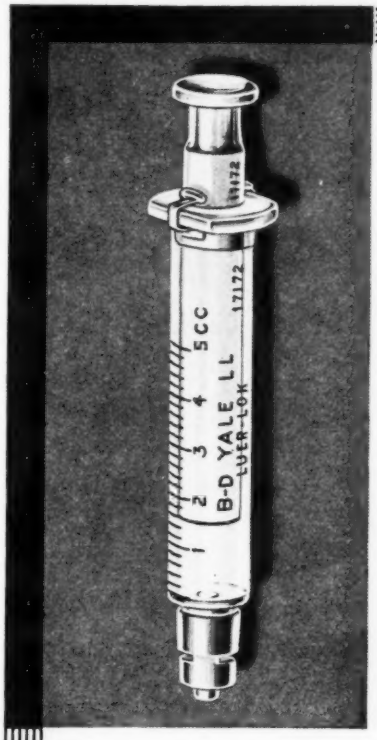

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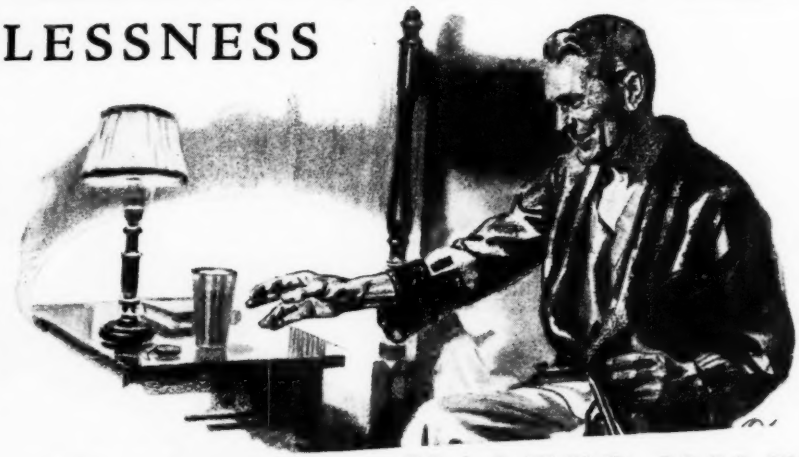

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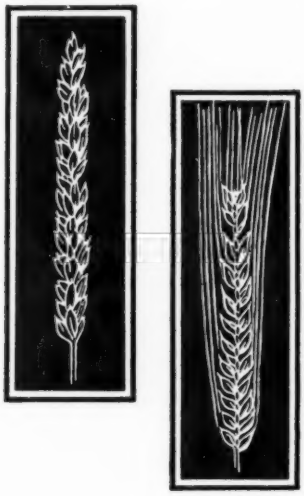

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